MAGNAVOX

# SERVICE MANUAL

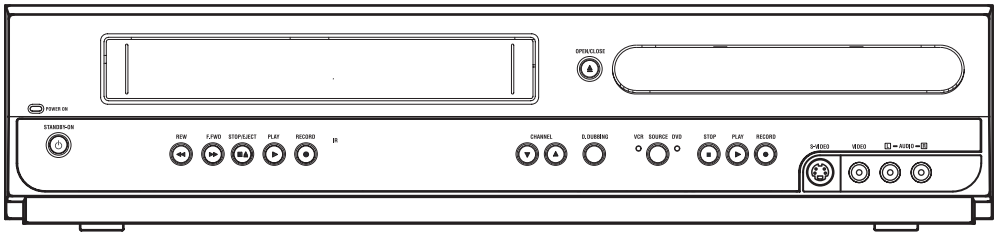
**Main Section**
- Specifications
- Preparation for Servicing
- Adjustment Procedures
- Schematic Diagrams
- CBA's
- Exploded Views
- Parts List

**When servicing the deck mechanism, refer to MK14 Deck Mechanism Section.**

**Deck Mechanism Part No.: N2460FL**

## DVD RECORDER & VIDEO CASSETTE RECORDER

# CMWR20V6



VHS

# IMPORTANT SAFETY NOTICE

**Proper service and repair is important to the safe, reliable operation of all Funai Equipment. The service procedures recommended by Funai and described in this service manual are effective methods of performing service operations. Some of these service special tools should be used when and as recommended.**

**It is important to note that this service manual contains various CAUTIONS and NOTICES which should be carefully read in order to minimize the risk of personal injury to service personnel. The possibility exists that improper service methods may damage the equipment. It also is important to understand that these CAUTIONS and NOTICES ARE NOT EXHAUSTIVE. Funai could not possibly know, evaluate and advice the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, Funai has not undertaken any such broad evaluation. Accordingly, a servicer who uses a service procedure or tool which is not recommended by Funai must first use all precautions thoroughly so that neither his safety nor the safe operation of the equipment will be jeopardized by the service method selected.**

Manufactured under license from Dolby Laboratories.
“Dolby” and the double-D symbol are trademarks of Dolby Laboratories.

# MAIN SECTION

# DVD RECORDER & VIDEO CASSETTE RECORDER

# CMWR20V6

**Main Section**
- **Specifications**
- **Preparation for Servicing**
- **Adjustment Procedures**
- **Schematic Diagrams**
- **CBA's**
- **Exploded Views**
- **Parts List**

## TABLE OF CONTENTS


Specifications . . . . . 1-1-1
Laser Beam Safety Precautions . . . . . 1-2-1
Important Safety Precautions . . . . . 1-3-1
Standard Notes for Servicing . . . . . 1-4-1
Preparation for Servicing. . . . . 1-5-1
Cabinet Disassembly Instructions . . . . . 1-6-1
Electrical Adjustment Instructions . . . . . 1-7-1
How to Initialize the DVD Recorder & VCR . . . . . 1-8-1
Firmware Renewal Mode . . . . . 1-9-1
Function Indicator Symbols. . . . . 1-10-1
Block Diagrams . . . . . 1-11-1
Schematic Diagrams / CBA's and Test Points. . . . . 1-12-1
Waveforms . . . . . 1-13-1
Wiring Diagram < VCR Section > . . . . . 1-14-1
Wiring Diagram < DVD Section > . . . . . 1-14-2
System Control Timing Charts . . . . . 1-15-1
IC Pin Function Descriptions. . . . . 1-16-1
Lead Identifications . . . . . 1-17-1
Exploded Views. . . . . 1-18-1
Mechanical Parts List . . . . . 1-19-1
Electrical Parts List . . . . . 1-20-1

# SPECIFICATIONS

## < VCR Section >

| Description | Unit | Minimum | Nominal | Maximum | Remark |
|---|---|---|---|---|---|
| **1. Video** | | | | | |
| 1-1. Video Output (PB) | Vp-p | 0.8 | 1.0 | 1.2 | SP Mode |
| 1-2. Video Output (R/P) | Vp-p | 0.8 | 1.0 | 1.2 | |
| 1-3. Video S/N Y (R/P) | dB | 40 | 45 | | SP Mode, W/O Burst |
| 1-4. Video Color S/N AM (R/P) | dB | 37 | 41 | | SP Mode |
| 1-5. Video Color S/N PM (R/P) | dB | 30 | 36 | | SP Mode |
| 1-6. Resolution (PB) | Line | 230 | 245 | | SP Mode |
| **2. Servo** | | | | | |
| 2-1. Jitter Low | μsec | | 0.07 | 0.12 | SP Mode |
| 2-2. Wow & Flutter | % | | 0.3 | 0.5 | SP Mode |
| **3. Normal Audio** | | | | | |
| 3-1. Output (PB) | dBV | -9 | -6 | -3 | SP Mode |
| 3-2. Output (R/P) | dBV | -9 | -6 | -1.5 | SP Mode |
| 3-3. S/N (R/P) | dB | 36 | 41 | | SP Mode |
| 3-4. Distortion (R/P) | % | | 1.0 | 4.0 | SP Mode |
| 3-5. Freq. resp (R/P) at 200Hz | dB | -11 | -4 | | SP Mode |
| (-20dB ref. 1kHz) at 8kHz | dB | -14 | -4 | | SP Mode |
| **4. Tuner** | | | | | |
| 4-1. Video output | Vp-p | 0.8 | 1.0 | 1.2 | E-E Mode |
| 4-2. Video S/N | dB | 39 | 42 | | E-E Mode |
| 4-3. Audio output | dB | -10 | -6 | -2 | E-E Mode |
| 4-4. Audio S/N | dB | 40 | 46 | | E-E Mode |
| **5. Hi-Fi Audio** | | | | | |
| 5-1. Output | dBV | -12 | -8 | -4 | SP Mode |
| 5-2. Dynamic Range | dB | 70 | 85 | | SP Mode |
| 5-3. Freq. resp (6dB B.W) | Hz | | 20 ~ 20K | | SP Mode |

**Note**: Nominal specs represent the design specs. All units should be able to approximate these – some will exceed and some may drop slightly below these specs. Limit specs represent the absolute worst condition that still might be considered acceptable; In no case should a unit fail to meet limit specs.

## < DVD Section >

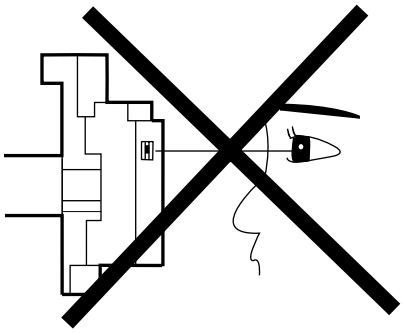
| ITEM | CONDITIONS | UNIT | NOMINAL | LIMIT |
|---|---|---|---|---|
| **1. VIDEO** | | | | |
| 1-1. Video Output | 75 ohm load | Vp-p | 1.0 | |
| 1-2. S-Video Output | | | | |
| Y (Luminance) | 75 ohm load | Vp-p | 1.0 | |
| C (Chrominance) | 75 ohm load | Vp-p | 0.286 | |
| 1-3. Component Output | | | | |
| Y (Luminance) | 75 ohm load | Vp-p | 1.0 | |
| Cb (Chrominance) | 75 ohm load | Vp-p | 0.7 | |
| Cr (Chrominance) | 75 ohm load | Vp-p | 0.7 | |
| **2. AUDIO** | | | | |
| 2-1. Output Level | | Vrms | 2.0 | |
| 2-2. Frequency Response | | | | |
| DVD-VIDEO LPCM | fs = 48kHz 20~22kHz | dB | ± 0.5 | |
| Audio CD | fs = 44.1kHz 20~20 kHz | dB | ± 0.5 | |
| 2-3. Signal/Noise Ratio | | | | |
| DVD-VIDEO LPCM | | dB | 90 | |
| CD | | dB | 90 | |
| REC & Playback | Input: 2 Vrms, Rec Speed: XP | dB | 80 | |
| 2-4. Dynamic Range | | | | |
| DVD-VIDEO LPCM | | dB | 80 | |
| CD | | dB | 80 | |
| REC & Playback | Input: 2 Vrms, Rec Speed: XP | dB | 80 | |
| 2-5. THD+N | 1 kHz, 0 dB | | | |
| DVD-VIDEO LPCM | | % | 0.01 | |
| CD | | % | 0.01 | |
| REC & Playback | Input: 2 Vrms, Rec Speed: XP | % | 0.01 | |

**NOTES:**

1. All Items are measured without pre-emphasis unless otherwise specified.
2. Power supply : AC120 V 60 Hz
4. Ambient temperature : 5 °C ~ 40 °C

# LASER BEAM SAFETY PRECAUTIONS

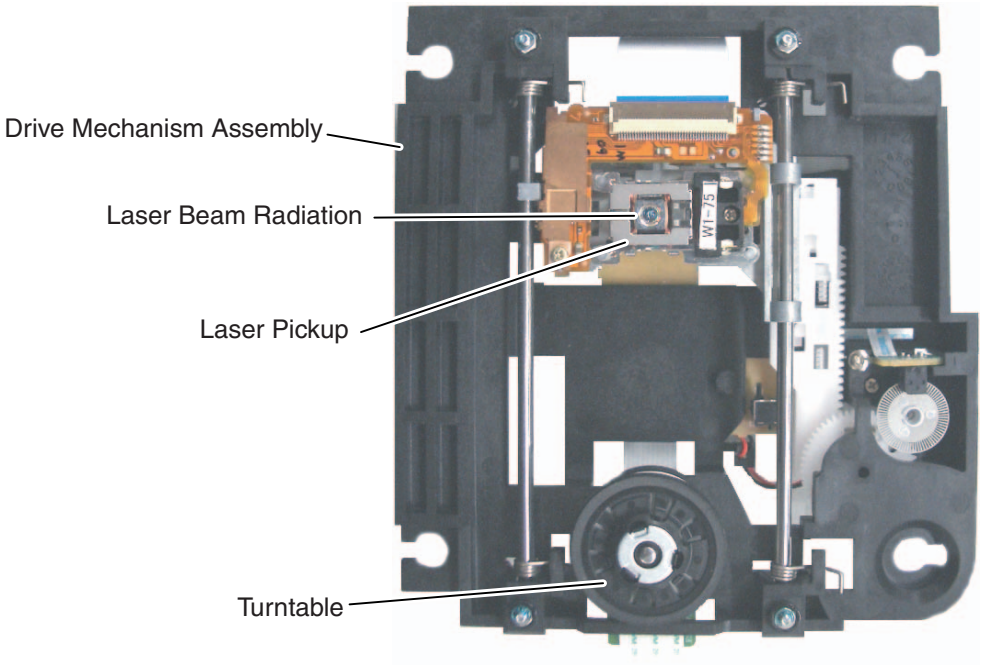
This DVD player uses a pickup that emits a laser beam.



**Do not look directly at the laser beam coming from the pickup or allow it to strike against your skin.**

The laser beam is emitted from the location shown in the figure. When checking the laser diode, be sure to keep your eyes at least 30 cm away from the pickup lens when the diode is turned on. Do not look directly at the laser beam.

**CAUTION:** Use of controls and adjustments, or doing procedures other than those specified herein, may result in hazardous radiation exposure.



DANGER - VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID DIRECT EXPOSURE TO BEAM.
CAUTION - VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.
ATTENTION - RAYONNEMENT LASER VISIBLE ET INVISIBLE EN CAS D'OUVERTURE EXPOSITION DANGEREUSE AU FAISCEAU.
注意 - ここを開くと可視及び不可視のレーザー光が出ます。ビームを直接見たり、触れたりしないでください。

**Location: Inside Top of DVD mechanism.**

# IMPORTANT SAFETY PRECAUTIONS

## Product Safety Notice

Some electrical and mechanical parts have special safety-related characteristics which are often not evident from visual inspection, nor can the protection they give necessarily be obtained by replacing them with components rated for higher voltage, wattage, etc. Parts that have special safety characteristics are identified by a ⚠ on schematics and in parts lists. Use of a substitute replacement that does not have the same safety characteristics as the recommended replacement part might create shock, fire, and/or other hazards. The Product's Safety is under review continuously and new instructions are issued whenever appropriate. Prior to shipment from the factory, our products are carefully inspected to confirm with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

## Precautions during Servicing

**A.** Parts identified by the ⚠ symbol are critical for safety. Replace only with part number specified.

**B.** In addition to safety, other parts and assemblies are specified for conformance with regulations applying to spurious radiation. These must also be replaced only with specified replacements. Examples: RF converters, RF cables, noise blocking capacitors, and noise blocking filters, etc.

**C.** Use specified internal wiring. Note especially:
1) Wires covered with PVC tubing
2) Double insulated wires
3) High voltage leads

**D.** Use specified insulating materials for hazardous live parts. Note especially:
1) Insulation tape
2) PVC tubing
3) Spacers
4) Insulators for transistors

**E.** When replacing AC primary side components (transformers, power cord, etc.), wrap ends of wires securely about the terminals before soldering.

**F.** Observe that the wires do not contact heat producing parts (heat sinks, oxide metal film resistors, fusible resistors, etc.).

**G.** Check that replaced wires do not contact sharp edges or pointed parts.

**H.** When a power cord has been replaced, check that 5 - 6 kg of force in any direction will not loosen it.

**I.** Also check areas surrounding repaired locations.

**J.** Be careful that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

**K.** Crimp type wire connector
The power transformer uses crimp type connectors which connect the power cord and the primary side of the transformer. When replacing the transformer, follow these steps carefully and precisely to prevent shock hazards.
Replacement procedure
1) Remove the old connector by cutting the wires at a point close to the connector.
**Important:** Do not re-use a connector. (Discard it.)
2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.
3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.
4) Use a crimping tool to crimp the metal sleeve at its center. Be sure to crimp fully to the complete closure of the tool.

**L.** When connecting or disconnecting the internal connectors, first, disconnect the AC plug from the AC outlet.

# Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts, and wires have been returned to their original positions. Afterwards, do the following tests and confirm the specified values to verify compliance with safety standards.

## 1. Clearance Distance

When replacing primary circuit components, confirm specified clearance distance (d) and (d') between soldered terminals, and between terminals and surrounding metallic parts. (See Fig. 1)

**Table 1: Ratings for selected area**

| AC Line Voltage | Clearance Distance (d), (d') |
|---|---|
| 120 V | ≥ 3.2 mm (0.126 inches) |

**Note:** This table is unofficial and for reference only. Be sure to confirm the precise values.

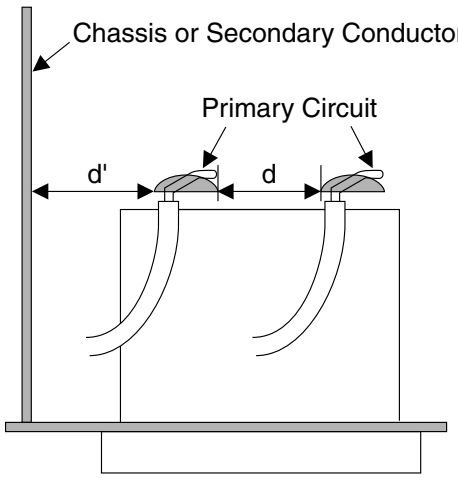



**Fig. 1**

## 2. Leakage Current Test

Confirm the specified (or lower) leakage current between B (earth ground, power cord plug prongs) and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.) is lower than or equal to the specified value in the table below.

**Measuring Method (Power ON):**

Insert load Z between B (earth ground, power cord plug prongs) and exposed accessible parts. Use an AC voltmeter to measure across the terminals of load Z. See Fig. 2 and the following table.

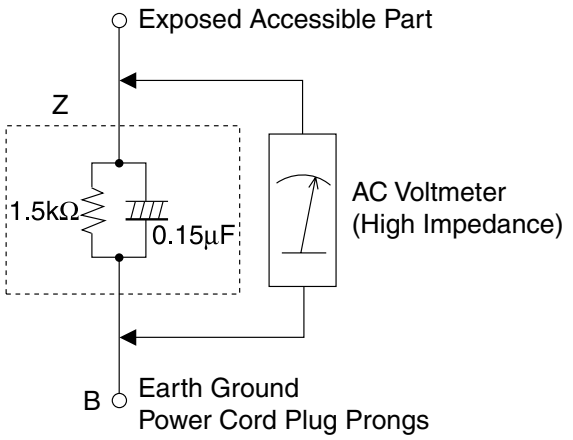



**Fig. 2**

**Table 2: Leakage current ratings for selected areas**

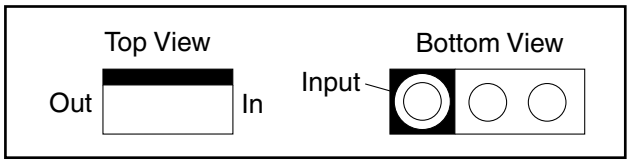
| AC Line Voltage | Load Z | Leakage Current (i) | Earth Ground (B) to: |
|---|---|---|---|
| 120 V | 0.15 μF CAP. & 1.5 kΩ RES. Connected in parallel | i ≤ 0.5 mA Peak | Exposed accessible parts |

**Note:** This table is unofficial and for reference only. Be sure to confirm the precise values.

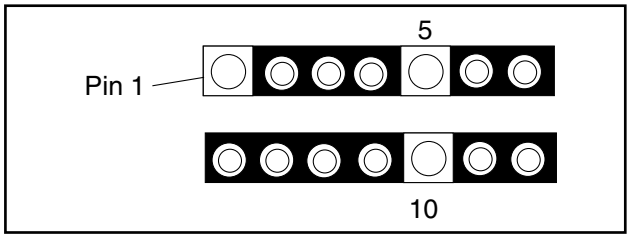
# STANDARD NOTES FOR SERVICING

## Circuit Board Indications

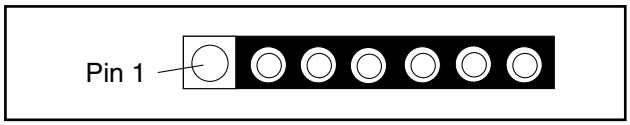
1. The output pin of the 3 pin Regulator ICs is indicated as shown.




2. For other ICs, pin 1 and every fifth pin are indicated as shown.

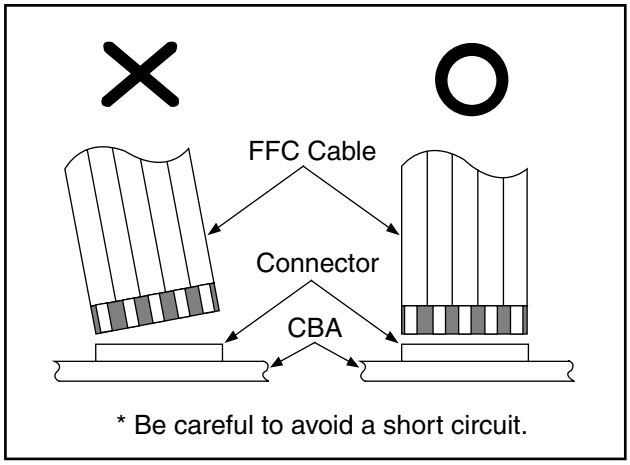



3. The 1st pin of every male connector is indicated as shown.




## Instructions for Connectors

1. When you connect or disconnect the FFC (Flexible Foil Connector) cable, be sure to first disconnect the AC cord.
2. FFC (Flexible Foil Connector) cable should be inserted parallel into the connector, not at an angle.




## Pb (Lead) Free Solder

**When soldering, be sure to use the Pb free solder.**

## How to Remove / Install Flat Pack-IC

### 1. Removal

**With Hot-Air Flat Pack-IC Desoldering Machine:**

1. Prepare the hot-air flat pack-IC desoldering machine, then apply hot air to the Flat Pack-IC (about 5 to 6 seconds). (Fig. S-1-1)

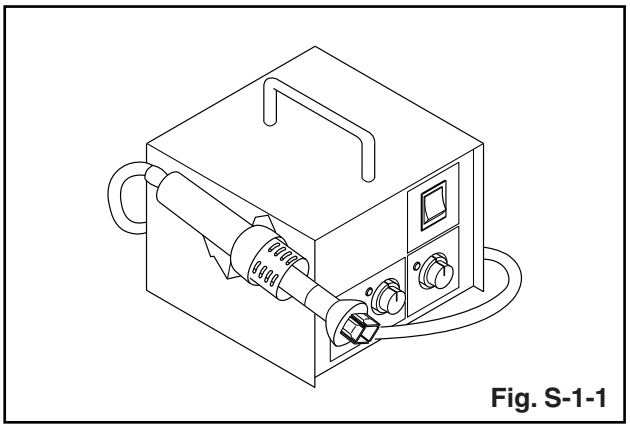


**Fig. S-1-1**

2. Remove the flat pack-IC with tweezers while applying the hot air.
3. Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)
4. Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

**CAUTION:**

1. The Flat Pack-IC shape may differ by models. Use an appropriate hot-air flat pack-IC desoldering machine, whose shape matches that of the Flat Pack-IC.
2. Do not supply hot air to the chip parts around the flat pack-IC for over 6 seconds because damage to the chip parts may occur. Put masking tape around the flat pack-IC to protect other parts from damage. (Fig. S-1-2)

3. The flat pack-IC on the CBA is affixed with glue, so be careful not to break or damage the foil of each pin or the solder lands under the IC when removing it.

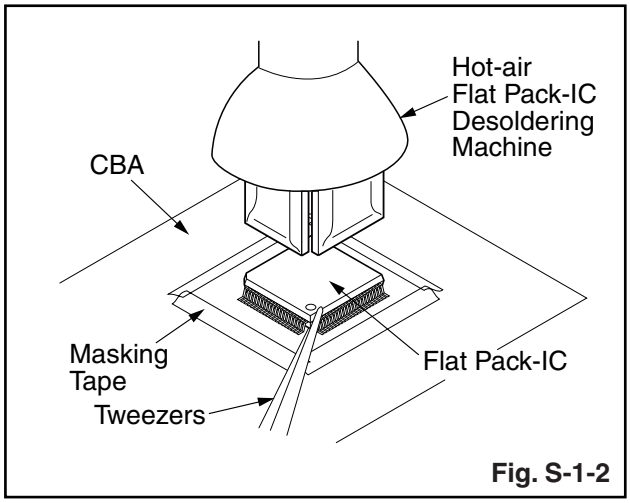



**Fig. S-1-2**

**With Soldering Iron:**

1. Using desoldering braid, remove the solder from all pins of the flat pack-IC. When you use solder flux which is applied to all pins of the flat pack-IC, you can remove it easily. (Fig. S-1-3)

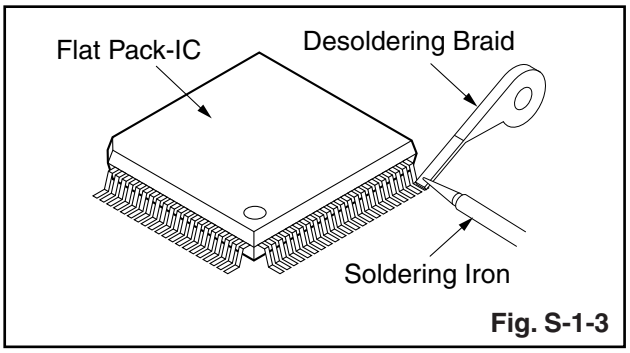



**Fig. S-1-3**

2. Lift each lead of the flat pack-IC upward one by one, using a sharp pin or wire to which solder will not adhere (iron wire). When heating the pins, use a fine tip soldering iron or a hot air desoldering machine. (Fig. S-1-4)

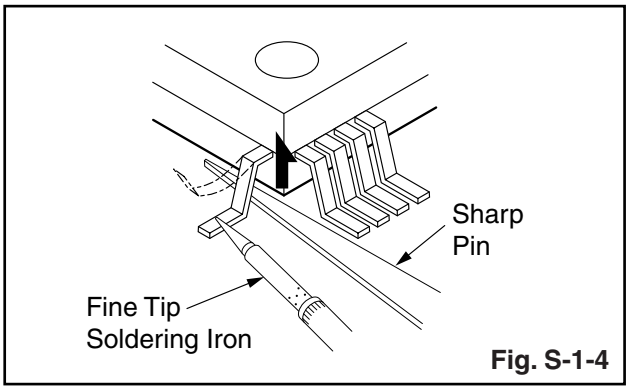



**Fig. S-1-4**

3. Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)
4. Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

**With Iron Wire:**

1. Using desoldering braid, remove the solder from all pins of the flat pack-IC. When you use solder flux which is applied to all pins of the flat pack-IC, you can remove it easily. (Fig. S-1-3)
2. Affix the wire to a workbench or solid mounting point, as shown in Fig. S-1-5.
3. While heating the pins using a fine tip soldering iron or hot air blower, pull up the wire as the solder melts so as to lift the IC leads from the CBA contact pads as shown in Fig. S-1-5.
4. Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)
5. Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

**Note:** When using a soldering iron, care must be taken to ensure that the flat pack-IC is not being held by glue. When the flat pack-IC is removed from the CBA, handle it gently because it may be damaged if force is applied.

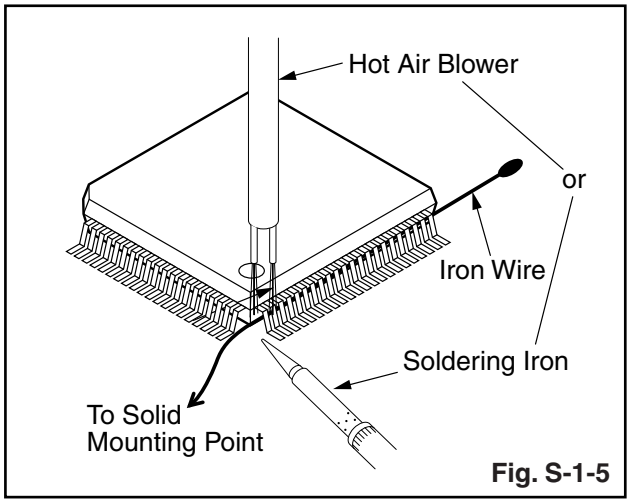



**Fig. S-1-5**

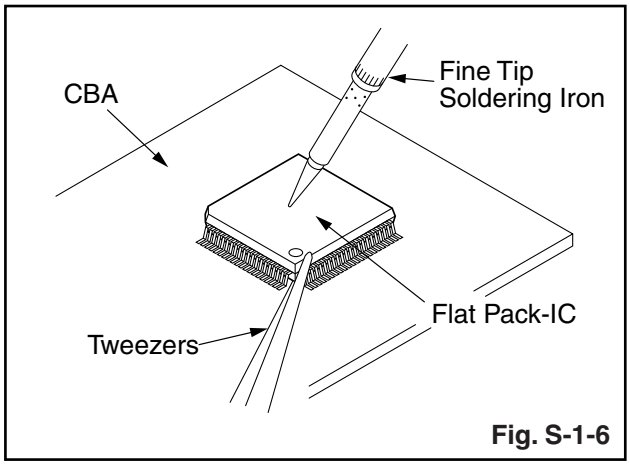



**Fig. S-1-6**

## 2. Installation

1. Using desoldering braid, remove the solder from the foil of each pin of the flat pack-IC on the CBA so you can install a replacement flat pack-IC more easily.
2. The "●" mark on the flat pack-IC indicates pin 1. (See Fig. S-1-7.) Be sure this mark matches the 1 on the PCB when positioning for installation. Then presolder the four corners of the flat pack-IC. (See Fig. S-1-8.)
3. Solder all pins of the flat pack-IC. Be sure that none of the pins have solder bridges.

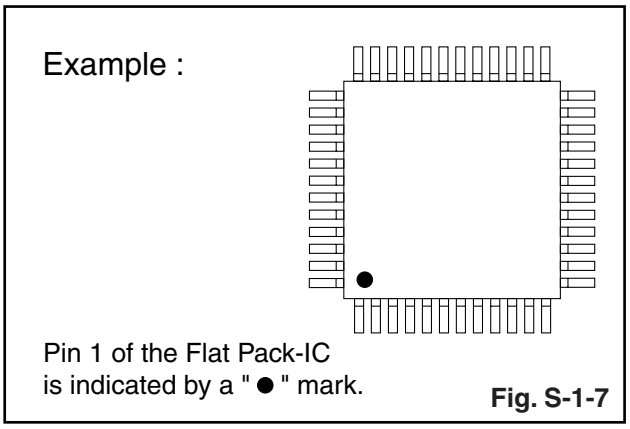



**Fig. S-1-7**

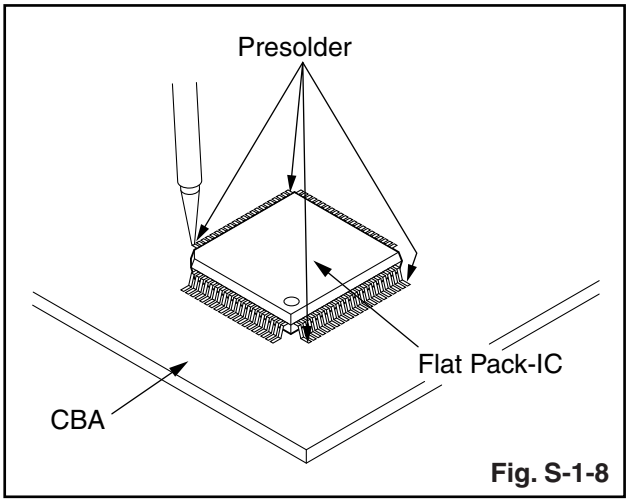



**Fig. S-1-8**

# Instructions for Handling Semi-conductors

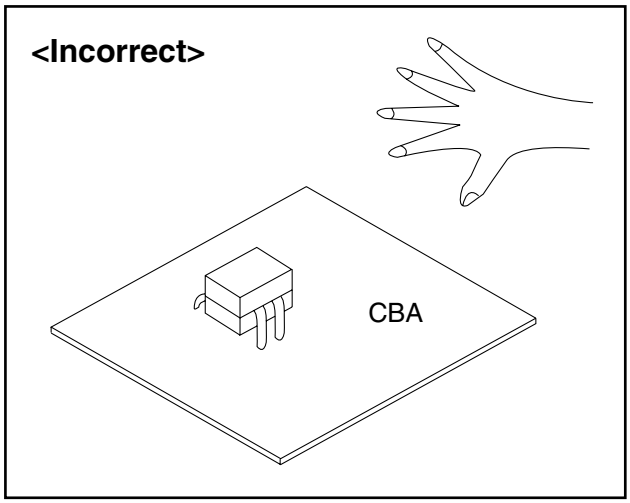
Electrostatic breakdown of the semi-conductors may occur due to a potential difference caused by electrostatic charge during unpacking or repair work.

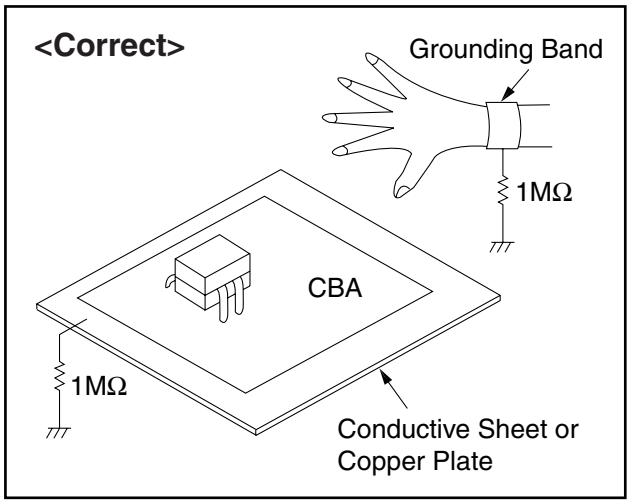
## 1. Ground for Human Body

Be sure to wear a grounding band (1 MΩ) that is properly grounded to remove any static electricity that may be charged on the body.

## 2. Ground for Workbench

Be sure to place a conductive sheet or copper plate with proper grounding (1 MΩ) on the workbench or other surface, where the semi-conductors are to be placed. Because the static electricity charge on clothing will not escape through the body grounding band, be careful to avoid contacting semi-conductors with your clothing.



# PREPARATION FOR SERVICING

## How to Enter the Service Mode

About Optical Sensors

**Caution:**

An optical sensor system is used for the Tape Start and End Sensors on this equipment. Carefully read and follow the instructions below. Otherwise the unit may operate erratically.

**What to do for preparation**

Insert a tape into the Deck Mechanism Assembly and press the PLAY button. The tape will be loaded into the Deck Mechanism Assembly. Make sure the power is on, connect TP502 (S-INH) to GND. This will stop the function of Tape Start Sensor, Tape End Sensor and Reel Sensors. (If these TPs are connected before plugging in the unit, the function of the sensors will stay valid.) See Fig. 1.

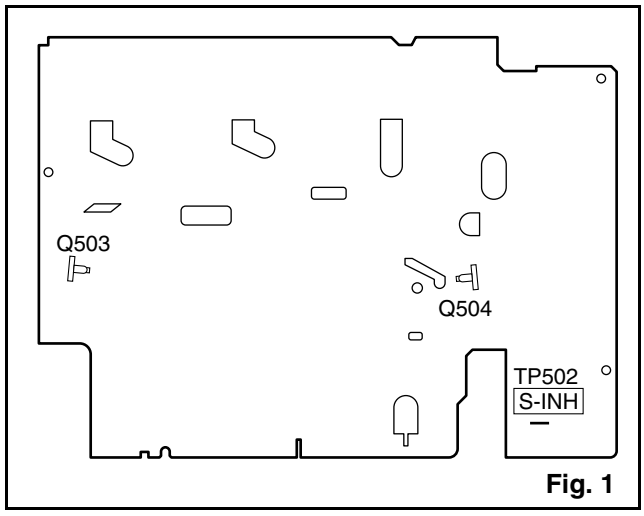


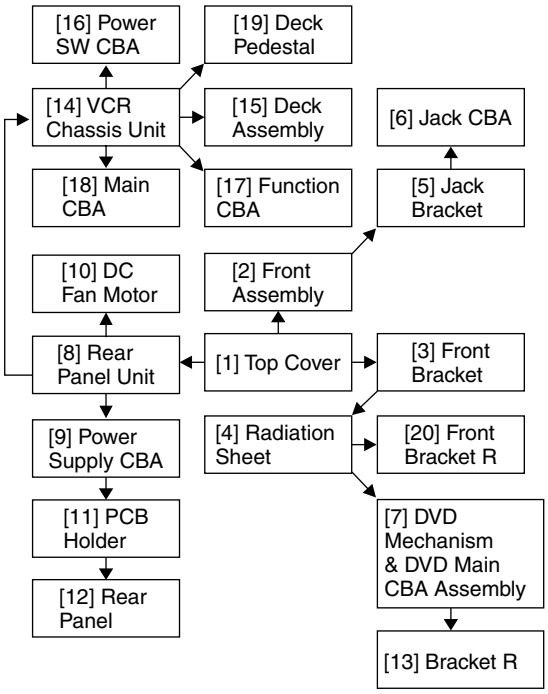

**Fig. 1**

**Note:** Because the Tape End Sensors are inactive, do not run a tape all the way to the start or the end of the tape to avoid tape damage.

# CABINET DISASSEMBLY INSTRUCTIONS

## 1. Disassembly Flowchart

This flowchart indicates the disassembly steps to gain access to item(s) to be serviced. When reassembling, follow the steps in reverse order. Bend, route, and dress the cables as they were originally.




## 2. Disassembly Method

| ID/ LOC. No. | PART | REMOVAL | | |
|---|---|---|---|---|
| | | Fig. No. | REMOVE/*UNHOOK/ UNLOCK/RELEASE/ UNPLUG/DESOLDER | Note |
| [1] | Top Cover | D1 | 6(S-1) | --- |
| [2] | Front Assembly | D2 | *5(L-1), *3(L-2), *CN1609 | 1<br>1-1<br>1-2<br>1-3 |
| [3] | Front Bracket | D2 | 2(S-2), (S-3) | --- |
| [4] | Radiation Sheet | D2 | ---------- | --- |
| [5] | Jack Bracket | D3 | 2(S-4) | --- |
| [6] | Jack CBA | D3 | Jack Earth Plate | --- |
| [7] | DVD Mechanism & DVD Main CBA Assembly | D4 | 2(S-5A), 2(S-5B), *CN101, *CN701 | --- |
| [8] | Rear Panel Unit | D5 | 6(S-6), 3(S-7), (S-8), *CN101, *CN102 | --- |
| [9] | Power Supply CBA | D6 | 4(S-9), AC Cord | --- |
| [10] | DC Fan Motor | D6 | 2(S-10), Earth Plate | --- |
| [11] | PCB Holder | D6 | 3(S-11) | --- |
| [12] | Rear Panel | D6 | ---------- | --- |
| [13] | Bracket R | D7 | 2(S-12) | --- |
| [14] | VCR Chassis Unit | D7 | 5(S-13), 6(S-14), (S-15), (S-16) | --- |
| [15] | Deck Assembly | D8 | (S-17), (S-18), Desolder | 2<br>3 |
| [16] | Power SW CBA | D8 | Desolder | --- |
| [17] | Function CBA | D8 | Desolder | --- |
| [18] | Main CBA | D8 | ---------- | --- |
| [19] | Deck Pedestal | D9 | 8(S-19) | --- |
| [20] | Front Bracket R | D9 | (S-20) | --- |
| ↓ (1) | ↓ (2) | ↓ (3) | ↓ (4) | ↓ (5) |

**Note:**

(1): Identification (location) No. of parts in the figures

(2): Name of the part

(3): Figure Number for reference

(4): Identification of parts to be removed, unhooked, unlocked, released, unplugged, unclamped, or desoldered.
P=Spring, L=Locking Tab, S=Screw, CN=Connector
*=Unhook, Unlock, Release, Unplug, or Desolder
e.g. 6(S-1) = six Screws (S-1),
5(L-1) = five Locking Tabs (L-1)

(5): Refer to “Reference Notes.”

## Reference Notes

CAUTION 1: Locking Tabs (L-1) and (L-2) are fragile. Be careful not to break them.

1-1. Release five Locking Tabs (L-1).

1-2. Release three Locking Tabs (L-2)

1-3. Disconnect Connector (CN1609), and remove the Front Assembly.

2. When reassembling, solder wire jumpers as shown in Fig. D8.

3. Before installing the Deck Assembly, be sure to place the pin of LD-SW on Main CBA as shown in Fig. D8. Then, install the Deck Assembly while aligning the hole of Cam Gear with the pin of LD-SW, the shaft of Cam Gear with the hole of LD-SW as shown in Fig. D8.

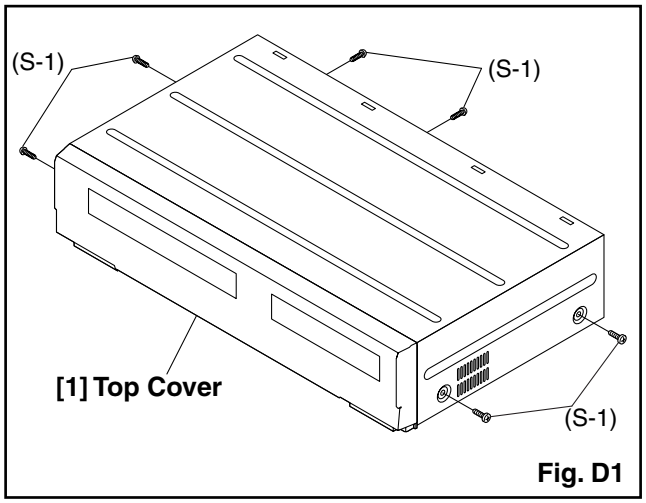


Fig. D1

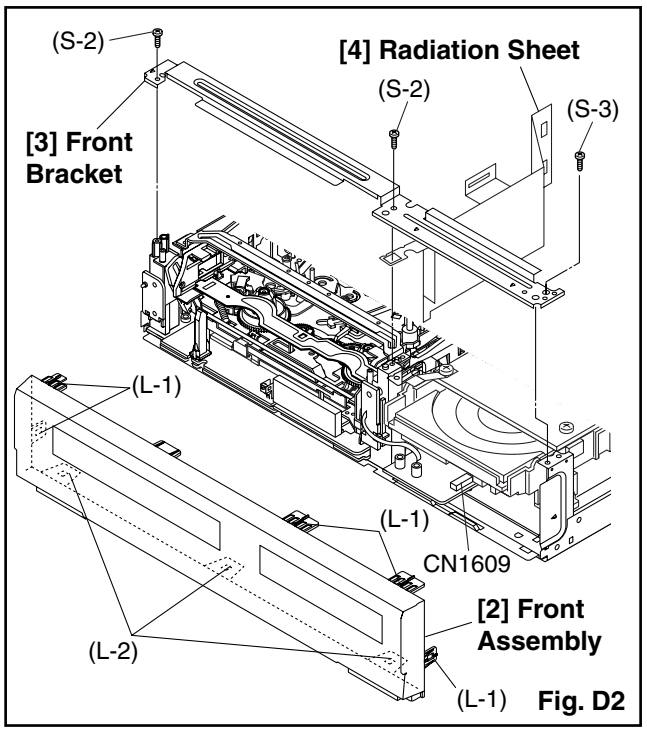


Fig. D2

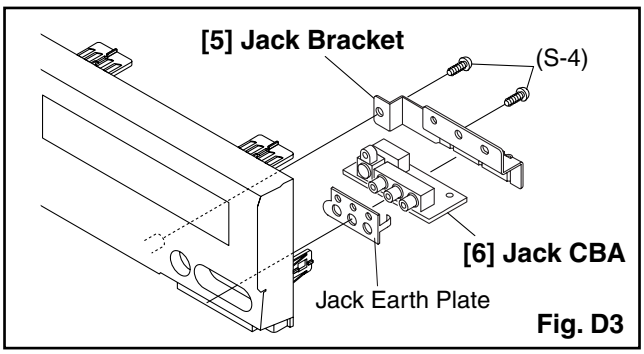


Fig. D3

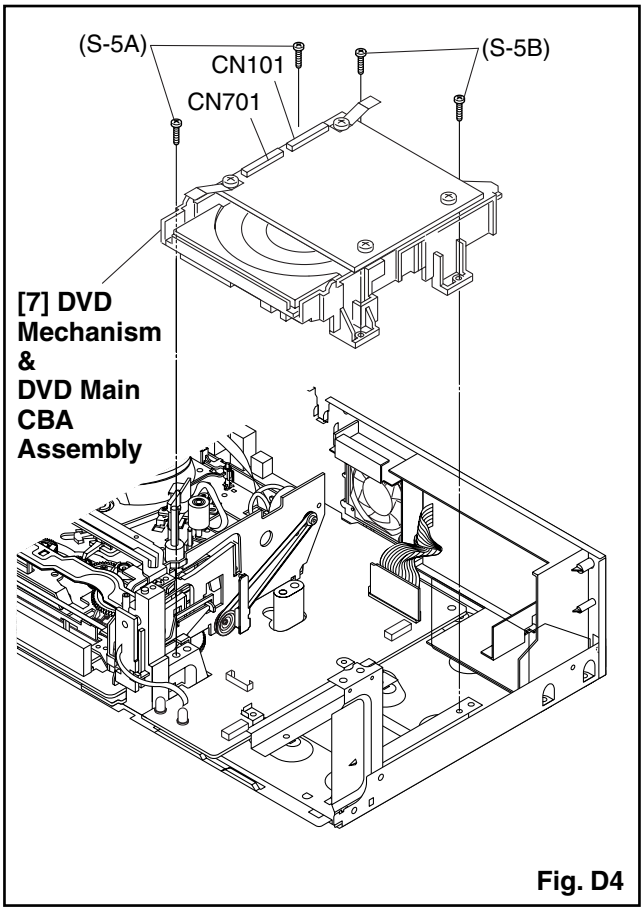


Fig. D4

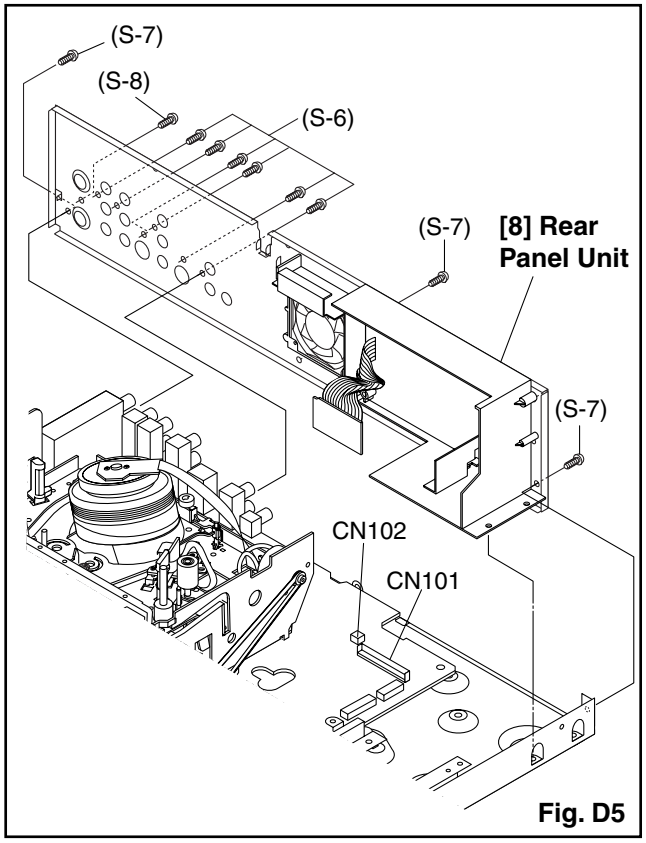


Fig. D5

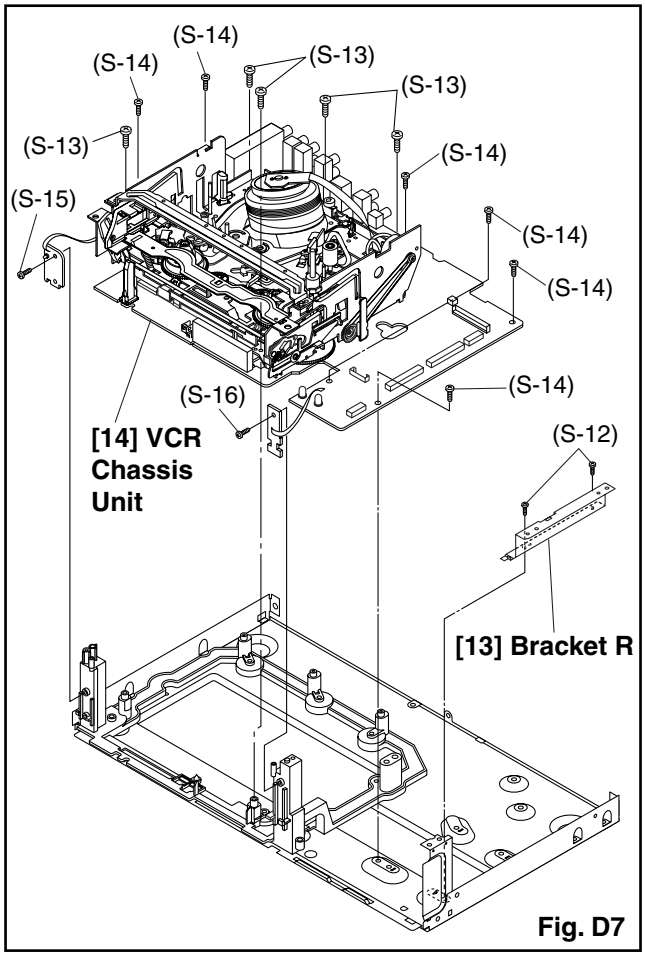


Fig. D7

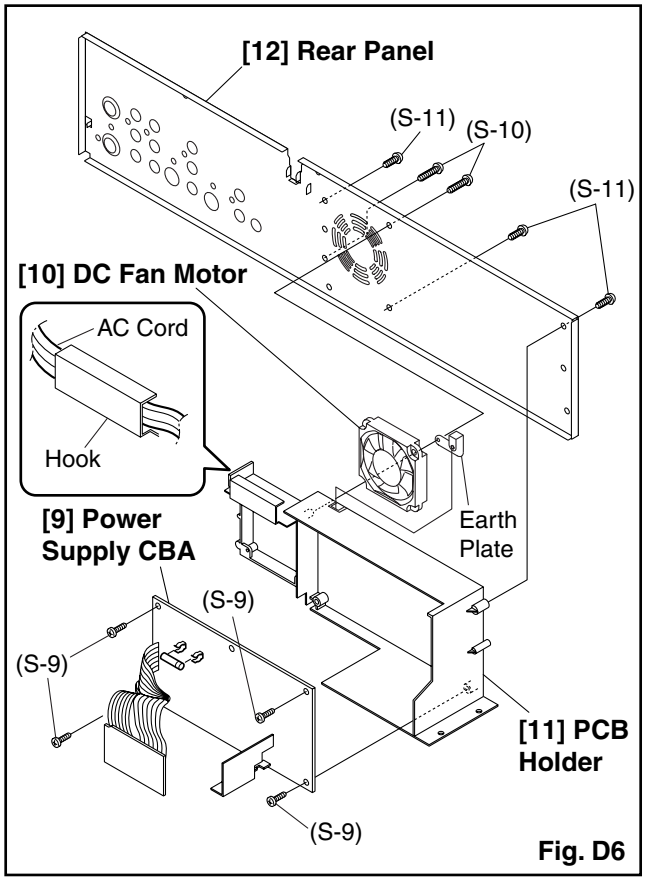
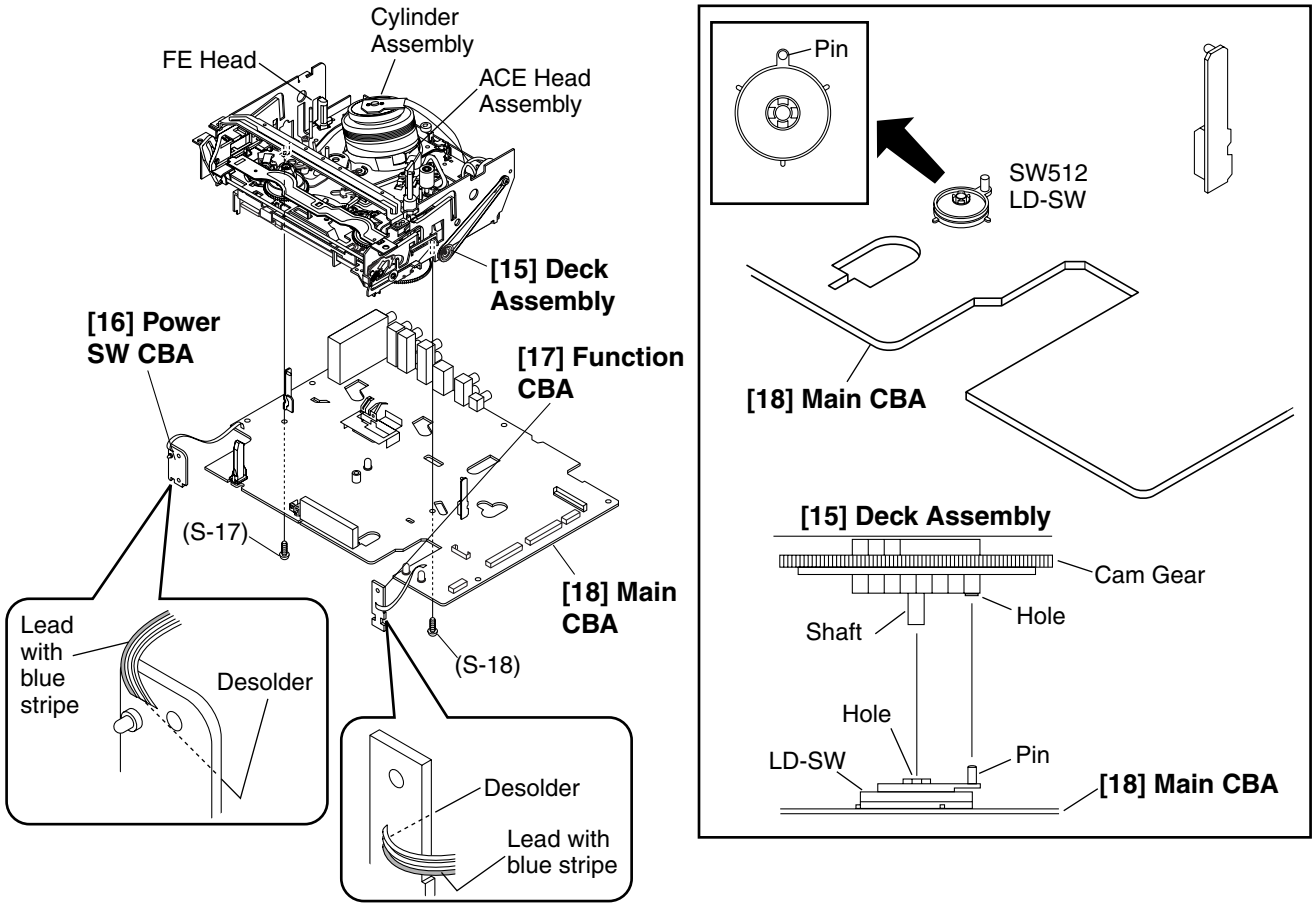
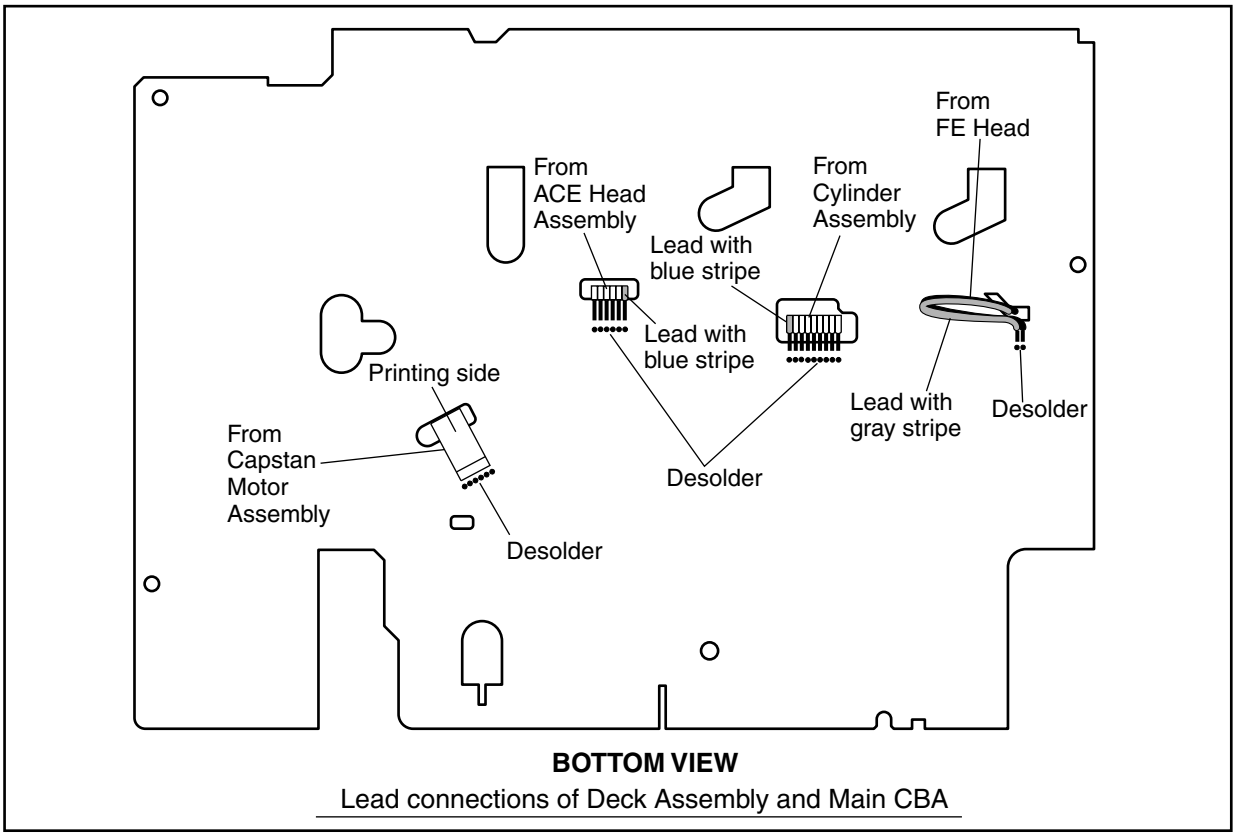


Fig. D6




**BOTTOM VIEW**

Lead connections of Deck Assembly and Main CBA

**Fig. D8**

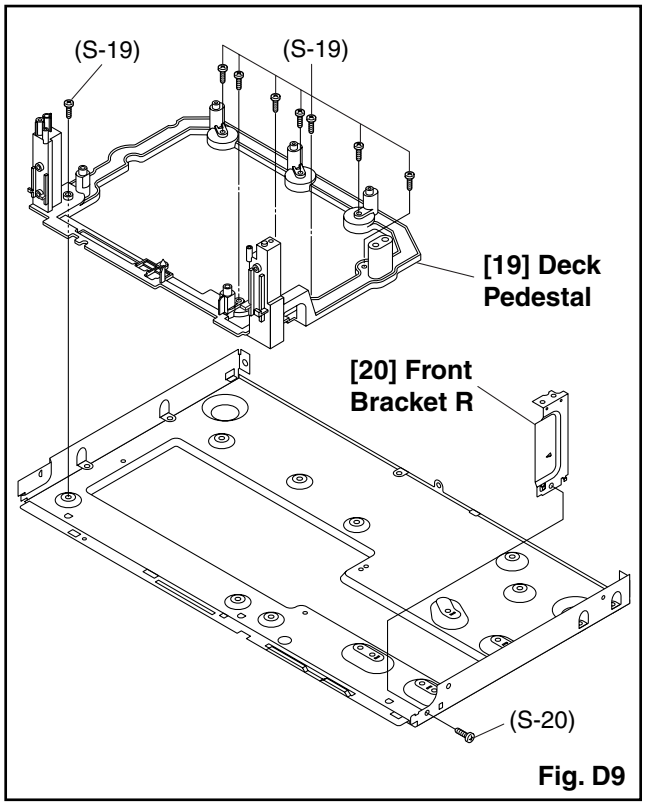
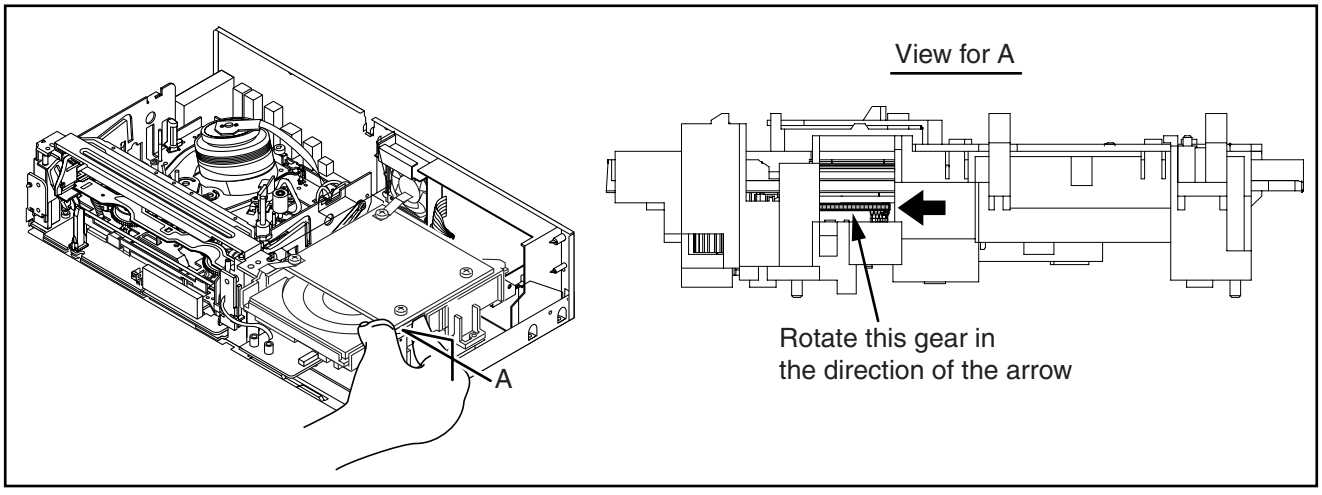



**Fig. D9**

## 3. How to Eject Manually

**Note:** When rotating the gear, be careful not to damage the gear.

1. Remove the Top Cover.
2. Rotate the gear in the direction of the arrow manually as shown below until the tray descends.
3. Pull the tray out manually and remove a disc.



# ELECTRICAL ADJUSTMENT INSTRUCTIONS

### General Note: "CBA" is abbreviation for "Circuit Board Assembly."

**NOTE:**

1. Electrical adjustments are required after replacing circuit components and certain mechanical parts. It is important to do these adjustments only after all repairs and replacements have been completed. Also, do not attempt these adjustments unless the proper equipment is available.
2. To perform these alignment / confirmation procedures, make sure that the tracking control is set in the center position: Press either [CHANNEL ▼] or [CHANNEL ▲] button on the front panel first, then the [PLAY] button on the front panel.

## Test Equipment Required

1. Oscilloscope: Dual-trace with 10:1 probe,
   V-Range: 0.001~50 V/Div.,
   F-Range: DC~AC-20 MHz
2. Alignment Tape (FL8A)

## Head Switching Position Adjustment

**Purpose:** To determine the Head Switching position during playback.

**Symptom of Misadjustment:** May cause Head Switching noise or vertical jitter in the picture.

| Test point | Adj. Point | Mode | Input |
|---|---|---|---|
| TP751(V-OUT)<br>TP302(RF-SW)<br>GND | VR501<br>(Switching Point) | PLAY<br>(SP) | ----- |
| **Tape** | **Measurement Equipment** | **Spec.** | |
| FL8A | Oscilloscope | 6.5H ± 1H<br>(412.7µs±63.5µs) | |

**Connections of Measurement Equipment**

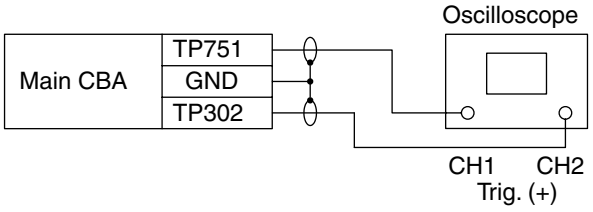
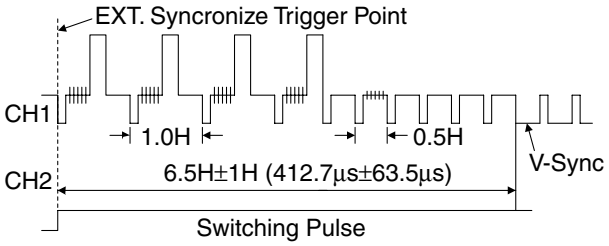



**Figure 1**




**Note:** TP751(V-OUT), TP302(RF-SW), VR501(Switching Point) --- Main CBA

**Reference Notes:**

Playback the Alignment tape and adjust VR501 so that the V-sync front edge of the CH1 video output waveform is at the 6.5H ± 1H (412.7 µs ± 63.5 µs) delayed position from the rising edge of the CH2 head switching pulse waveform.

# HOW TO INITIALIZE THE DVD RECORDER & VCR

To put the program back at the factory-default, initialize the DVD recorder & VCR as the following procedure.

## < DVD Section >

1. Turn the DVD recorder on.
2. Confirm that no disc is loaded or that the disc tray is open. To put the DVD recorder into the Version display mode, press [DVD], [CM SKIP], [1], [2], and [3] buttons on the remote control in that order. Fig. a appears on the screen.

*1: "*******" differs depending on the models.
*2: Firmware Version differs depending on the models, and this indication is one example.

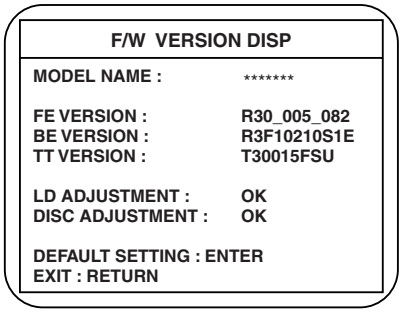



Fig. a Version Display Mode Screen

3. Press [OK] button, then the DVD recorder starts initializing. When the initializing is completed, the DVD recorder exits the Version display mode and turns off the power automatically.
   * To move into the Normal mode from the Version display mode, press [RETURN] button on the remote control instead of [OK] button.
   * When [STANDBY-ON] button is pressed before [OK] button is pressed, the DVD recorder exits the Version display mode, then the power turns off.

# FIRMWARE RENEWAL MODE

1. Turn the power on and remove the disc on the tray.
2. To put the DVD recorder into version up mode, press [DVD], [CM SKIP], [6], [5], and [4] buttons on the remote control unit in the order. Then the tray will open automatically.
   Fig. a appears on the screen and Fig. b appears on the VFD.

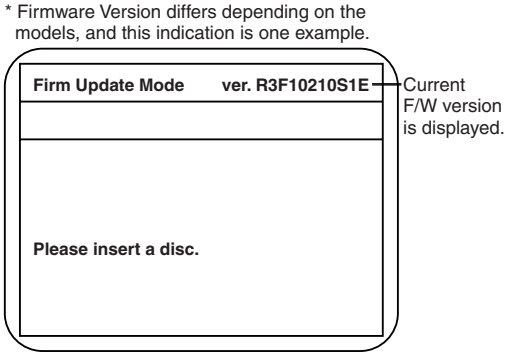

* Firmware Version differs depending on the models, and this indication is one example.
Firm Update Mode
ver. R3F10210S1E
Current F/W version is displayed.
Please insert a disc.

Fig. a Version Up Mode Screen

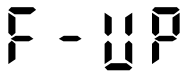



Fig. b VFD in Version Up Mode

3. Load the disc for version up.
   Fig. c appears on the screen. The file on the top is highlighted as the default.
   When there is only one file to exist, Step 4 will start automatically.

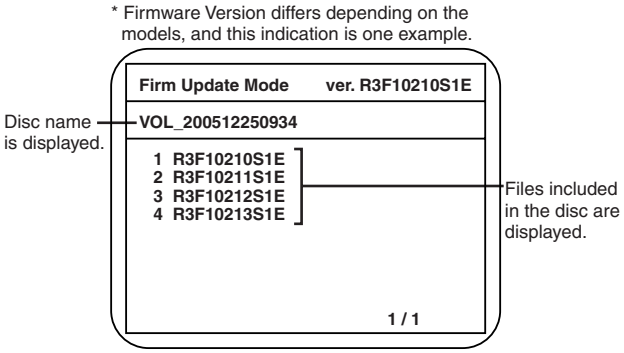



Fig. c Update Disc Screen

4. Select the firmware version pressing arrow buttons, then press [OK].
   Fig. d appears on the screen and Fig. e appears on the VFD. The DVD recorder starts updating.

   **About VFD indication of Fig. e:**

   1) When Fig. d is displayed on the screen, “F-UP” is displayed on the VFD.
   2) When “Firmware Updating... XX% Complete.” is displayed on the screen, “10210” is displayed on the VFD.

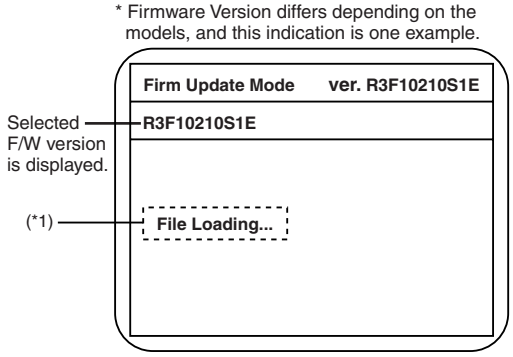

* Firmware Version differs depending on the models, and this indication is one example.
Firm Update Mode
ver. R3F10210S1E
Selected F/W version is displayed.
R3F10210S1E
(*1)
File Loading...

Fig. d Programming Mode Screen

Fig. e VFD in Programming Mode (Example)

The appearance shown in (*1) of Fig. d is described as follows.

| No. | Appearance | State |
|---|---|---|
| 1 | File Loading... | Sending files into the memory |
| 2 | Firmware Updating... XX% Complete. | Writing new version data |
| --- | Firmware Update Failure | Failed in updating |

5. After updating is finished, the tray opens automatically.
   At this time, no button is available.
6. Pull out the AC code once, then insert it again.

# FUNCTION INDICATOR SYMBOLS

## < VCR Section >

**Note:**

If a mechanical malfunction occurs, the power is turned off. When the power comes on again after that by pressing [STANDBY-ON] button, an error message is displayed on the TV screen for 5 seconds.

| Led Mode | Indicator Active |
|---|---|
| When reel or capstan mechanism is not functioning correctly | "⏏ R" is displayed on a TV screen. (Refer to Fig. 1.) |
| When tape loading mechanism is not functioning correctly | "⏏ T" is displayed on a TV screen. (Refer to Fig. 2.) |
| When cassette loading mechanism is not functioning correctly | "⏏ C" is displayed on a TV screen. (Refer to Fig. 3.) |
| When the drum is not working properly | "⏏ D" is displayed on a TV screen. (Refer to Fig. 4.) |
| P-ON+5V Power safety detection | "⏏ P" is displayed on a TV screen. (Refer to Fig. 5.) |

### TV screen

When reel or capstan mechanism is not functioning correctly

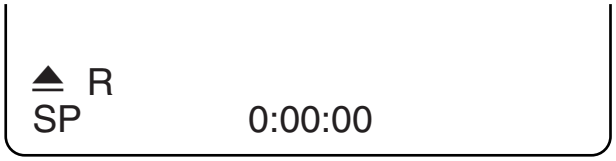



**Fig. 1**

When tape loading mechanism is not functioning correctly

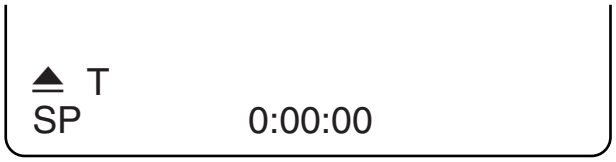



**Fig. 2**

When cassette loading mechanism is not functioning correctly

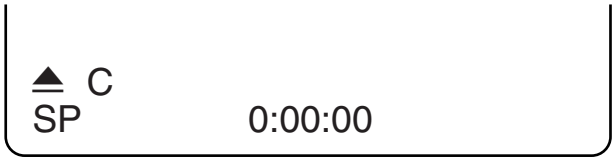



**Fig. 3**

When the drum is not working properly

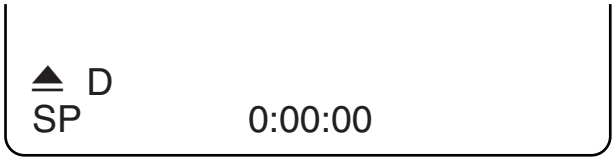



**Fig. 4**

P-ON+5V Power safety detection

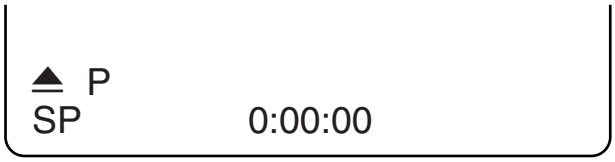
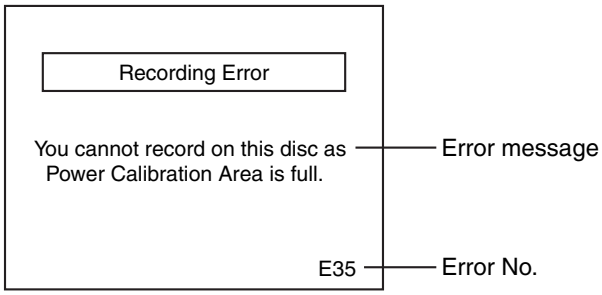



**Fig. 5**

## < DVD Section >

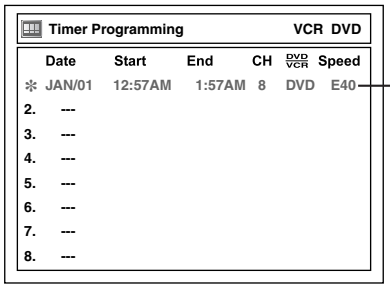
**Note:** If an error occurs, a message with the error number appears on the screen.




| Message | Solution | Error No. | Error Description | Priority |
|---|---|---|---|---|
| Can not record on this disc. | Insert the recordable disc, and ensure the disc status satisfies the recording requirements. | 1 | An error occurs during data reading. | - |
| | | 2 | There is no reply for 15 seconds in Test Unit Ready. | - |
| | | 3 | Cannot write the data after trying three times. | - |
| | | 4 | An error occurs with OPC. | - |
| | | 5 | During recovery in a record. | - |
| | | 6 | An error occurs even if recovery has been tried three times. | - |
| | | 7 | An error occurs in a format. | - |
| | | 8 | It cannot start an encode. | - |
| | | 9 | NV_PCK/RDI_PCK is not in encoded data. | - |
| | | 10 | Encode Pause condition continued for 10 minutes. | - |
| | | 11 | Encode Pause condition continued in normal REC condition for 10 minutes. | - |
| | | 12 | Difference in the address and can not get StreamID of RDI/VIDEO. | - |
| | | 13 | It is a reply that “ATAPI is not readable.” | - |
| | | 14 | Cannot write the data after recovering SMALL VMGI. | - |
| | | 15 | Cannot write the data after DVD-R Reverse Track. | - |
| | | 16 | An error occurs in Finalize Close. | - |
| | | 17 | An error occurs in Rec Stop Close. | - |
| | | 18 | An error occurs in PCA Full (DVD_R). | - |
| | | 19 | Safety Stop occurs during editing. | - |
| | | 20 | High Speed Disc. | 2 |
| | | 21 | The disc is not formatted. | 5 |
| | | 22 | Disc Error has occurred. | 3 |
| | | 23 | The -R Disc of VR Mode. | 6 |
| | | 24 | The disc except DVD-R/RW or finalized DVD-R. | 1 |
| This program is not allowed to be recorded. | You cannot record copy prohibited programs. | 25 | During the Macrovision picture input. | 11 |
| | | 26 | During the CGMS picture input. | 12 |
| This program is not recordable in Video mode. | Set “DVD-RW Recording Format” to “VR mode”. | 27 | During the CGMS picture (possible to record once) input. (Video Format Disc) | 12 |

| Message | Solution | Error No. | Error Description | Priority |
|---|---|---|---|---|
| This program is not allowed to be recorded on this disc. | Insert a ver.1.1 CPRM compatible DVD-RW disc. | 28 | During the CGMS picture (possible to record once) input. (Disc which is not for the correspondence to VR Format CPRM) | 12 |
| This disc is protected and not recordable. | Release the disc protect setting in the Disc Setting menu. | 29 | Disc Protected Disc. | 7 |
| Disc is full.<br>(No area for new recording) | Insert the recordable disc with enough recording space. | 30 | No avilable recording space. | 5 |
| You cannot record more than 99 titles on one disc.<br>(The maximum is 99.) | Delete unnecessary titles. | 31 | Its recording capacity has been reached. (Video Format Disc) | 7 |
| | | 32 | Its recording capacity has been reached. (VR Format Disc) | 8 |
| You cannot record more than 999 chapters on one disc.<br>(The maximum is 999.) | Delete unnecessary chapter markers. | 33 | The 999 chapter has been reached. (VR Format Disc) | 9 |
| You cannot record on this disc as Control Information is full. | Delete unnecessary titles. | 34 | There is not space to record field of control information. | 10 |
| You cannot record on the disc as Power Calibration Area is full. | Insert a new disc. | 35 | PCA is Full. (in REC start) | 4 |
| This disc is already finalized. | Release the finalizing for this disc. | 36 | It is finalized. (Video Format Disc) | 6 |
| Can not record on this disc. | Repeat the same operation. | 37 | Access to Memory Area range outside. | - |
| | | 38 | Sector Address is wrong. | - |
| | | 39 | BUP writing error of chapter editing. | - |

If an error occurs during the timer recording, one of the following error numbers (40 to 42) or the above error messages (error number: 1 to 39) is displayed on the recording menu after timer recording.
(Once the timer programming list with error indication is displayed, the program line(s) with error will be cleared only after the programs are cancelled and reset to the timer standby mode.)
(In the case of the error occurs during setting the timer programming, no error messages is displayed.)

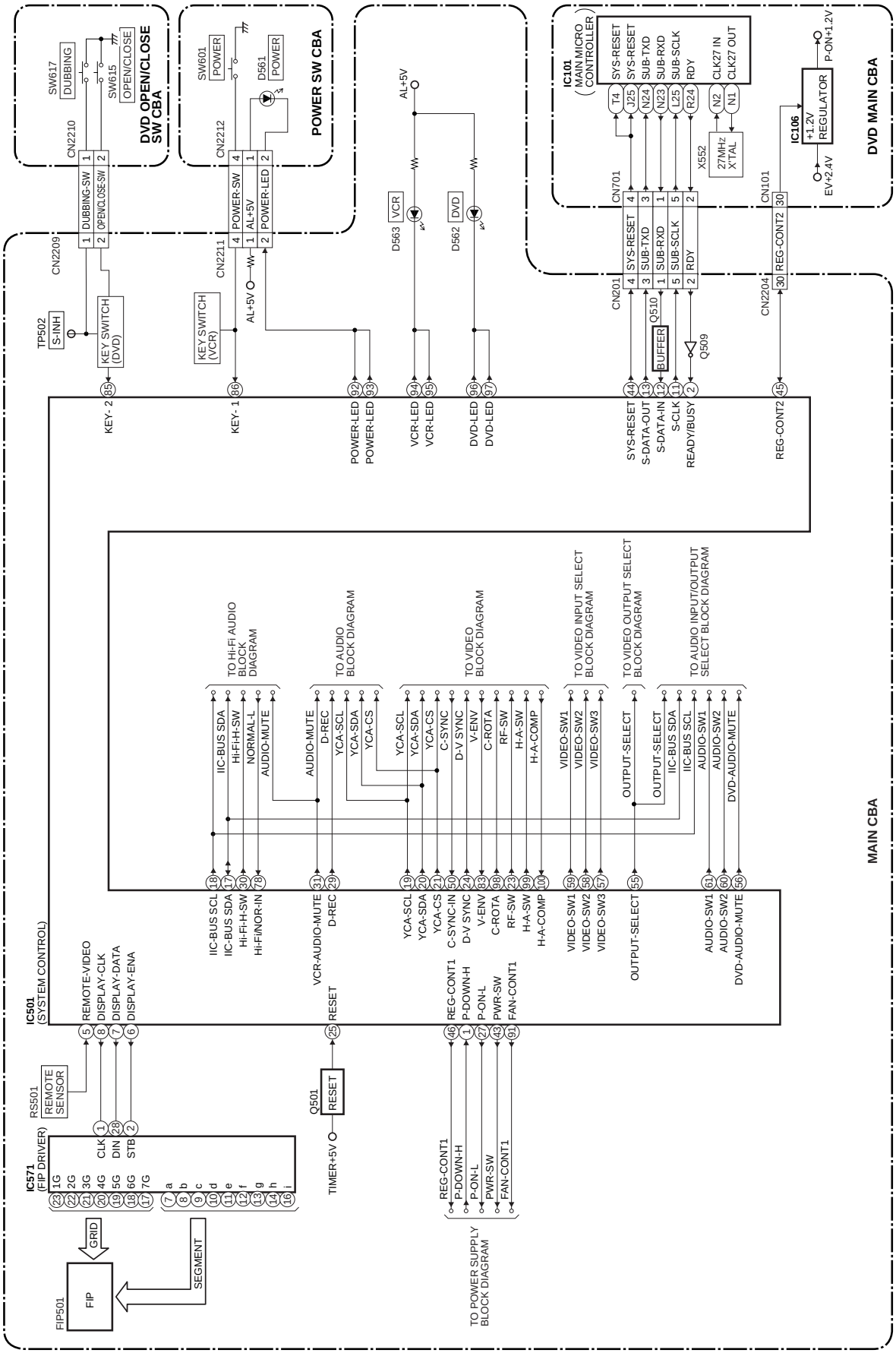



A program with the error number is grayed out and asterisked on the timer programming list.

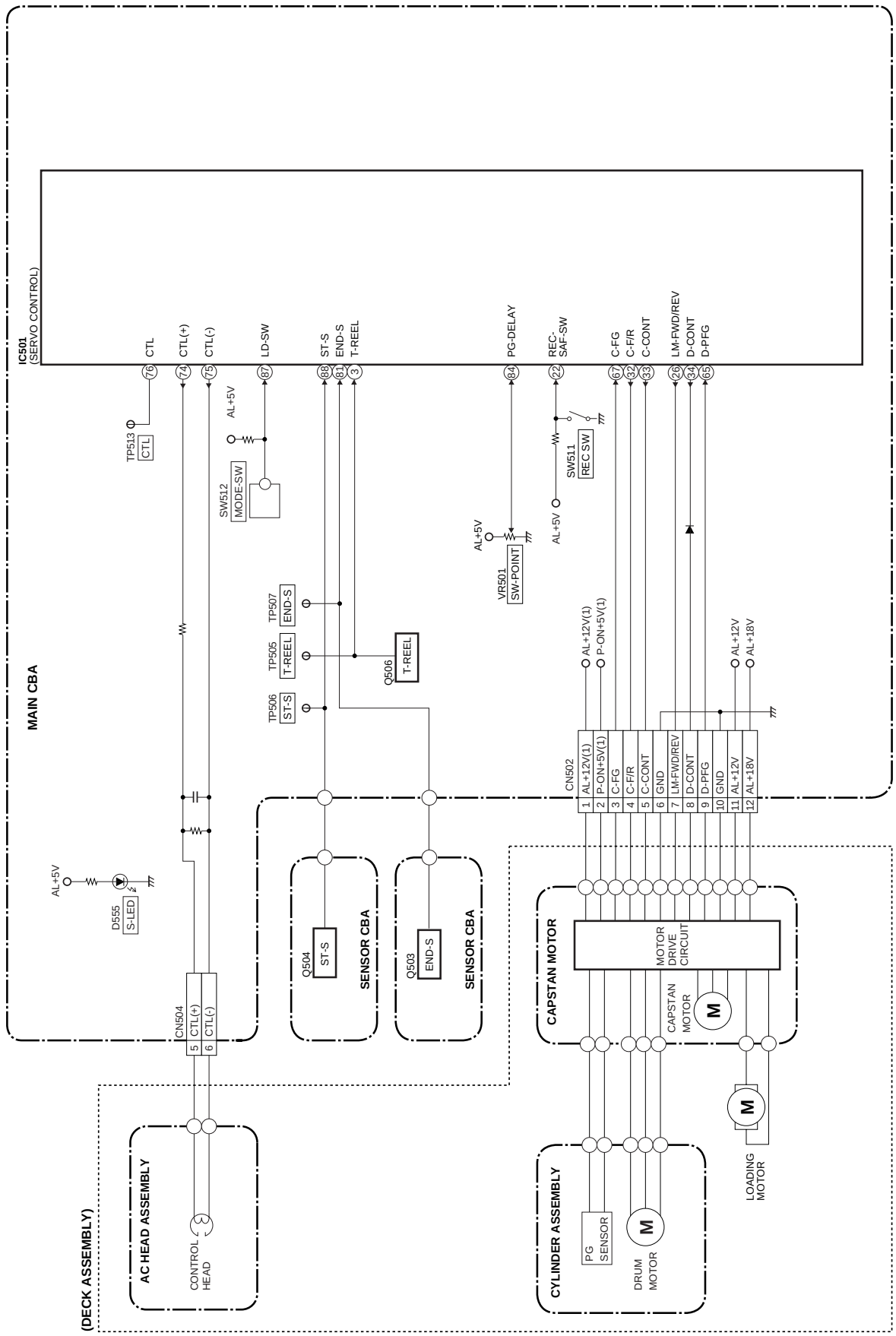
| Message | Solution | Error No. | Error Description | Priority |
|---|---|---|---|---|
| Error message is not displayed. | - Set the timer programming correctly.<br>- Set the timer programming before the start time.<br>- Insert a recordable videotape with a record tab. | 40 | - Some portion has not been recorded because of program overlapping.<br>- Recording did not start at the start time.<br>- No Videotape is inserted. Videotape ran out during recording. | - |
| | Turn the power on and set the clock correctly then set timer programming again. | 41 | Power failed | - |
| | Insert the recordable disc. | 42 | No disc when recording | - |

# BLOCK DIAGRAMS

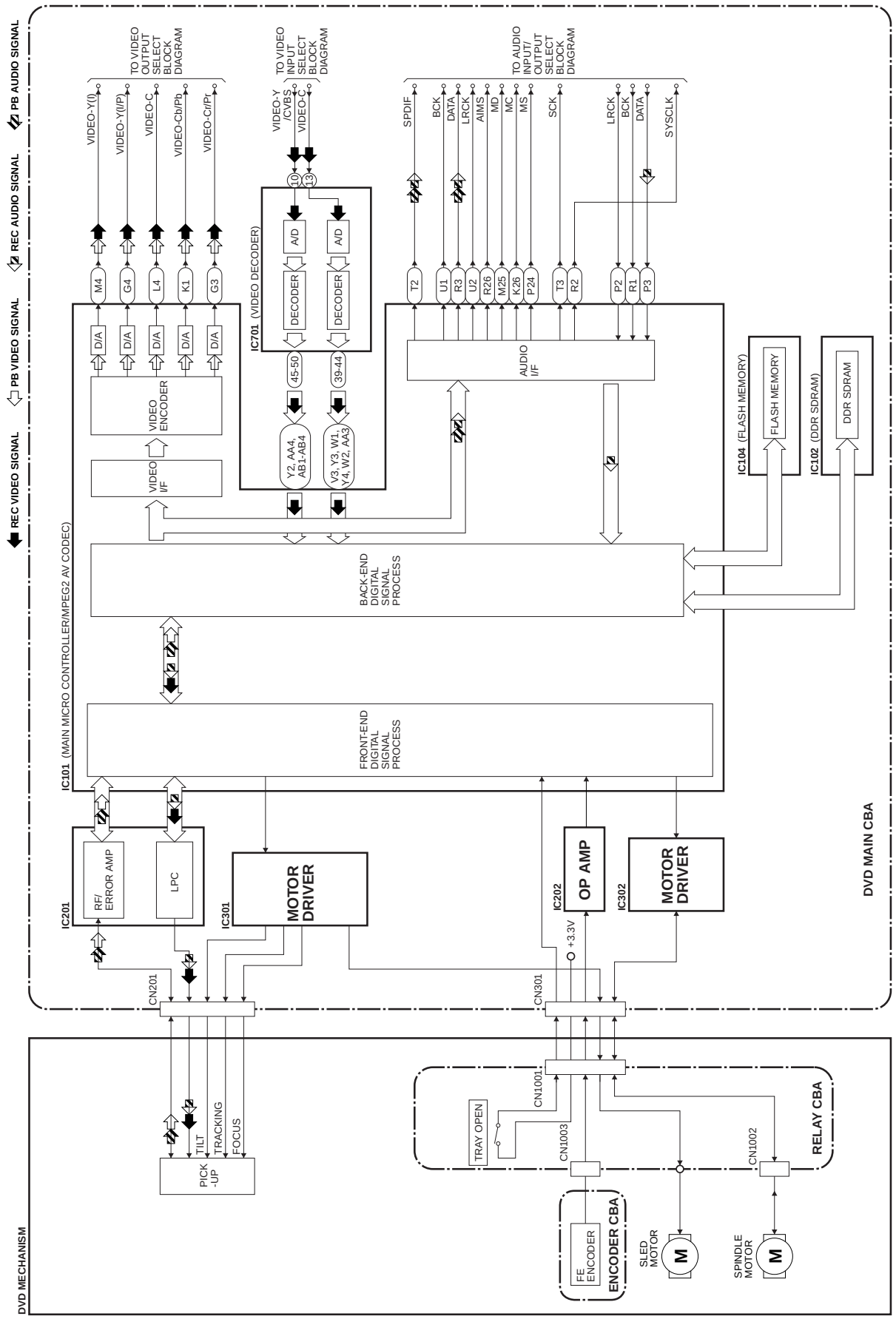
## System Control Block Diagram



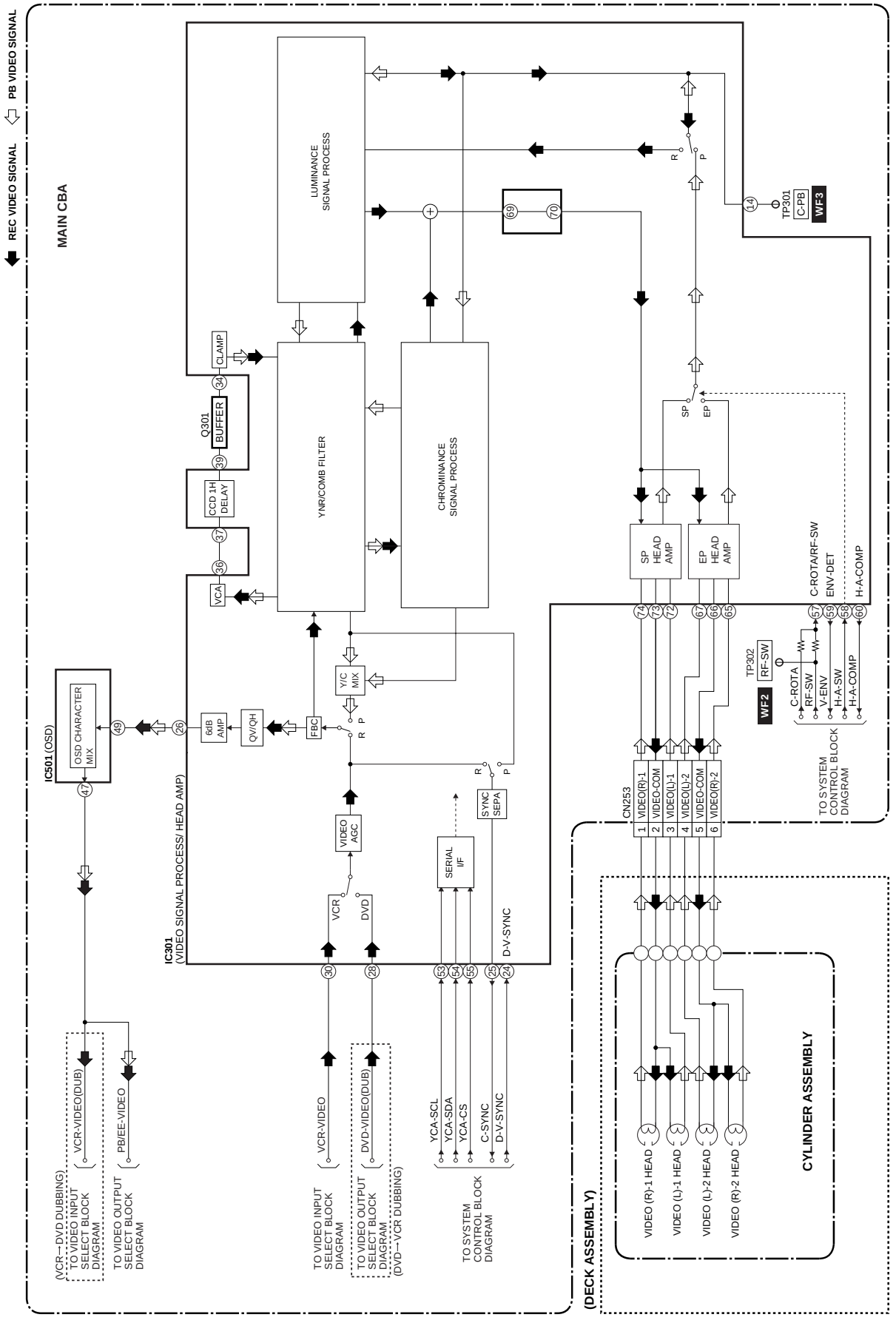
# Servo Block Diagram



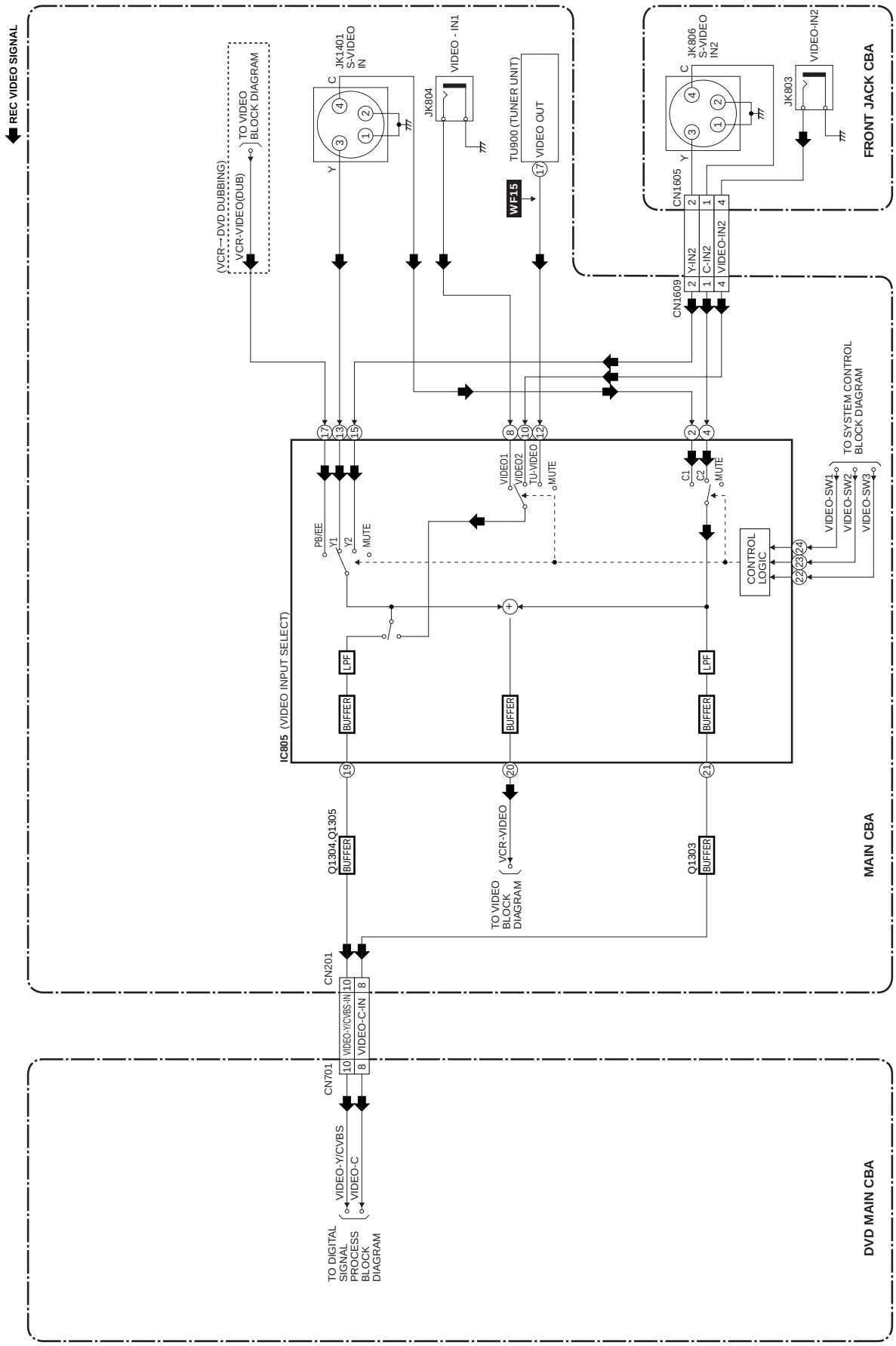
# Digital Signal Process Block Diagram



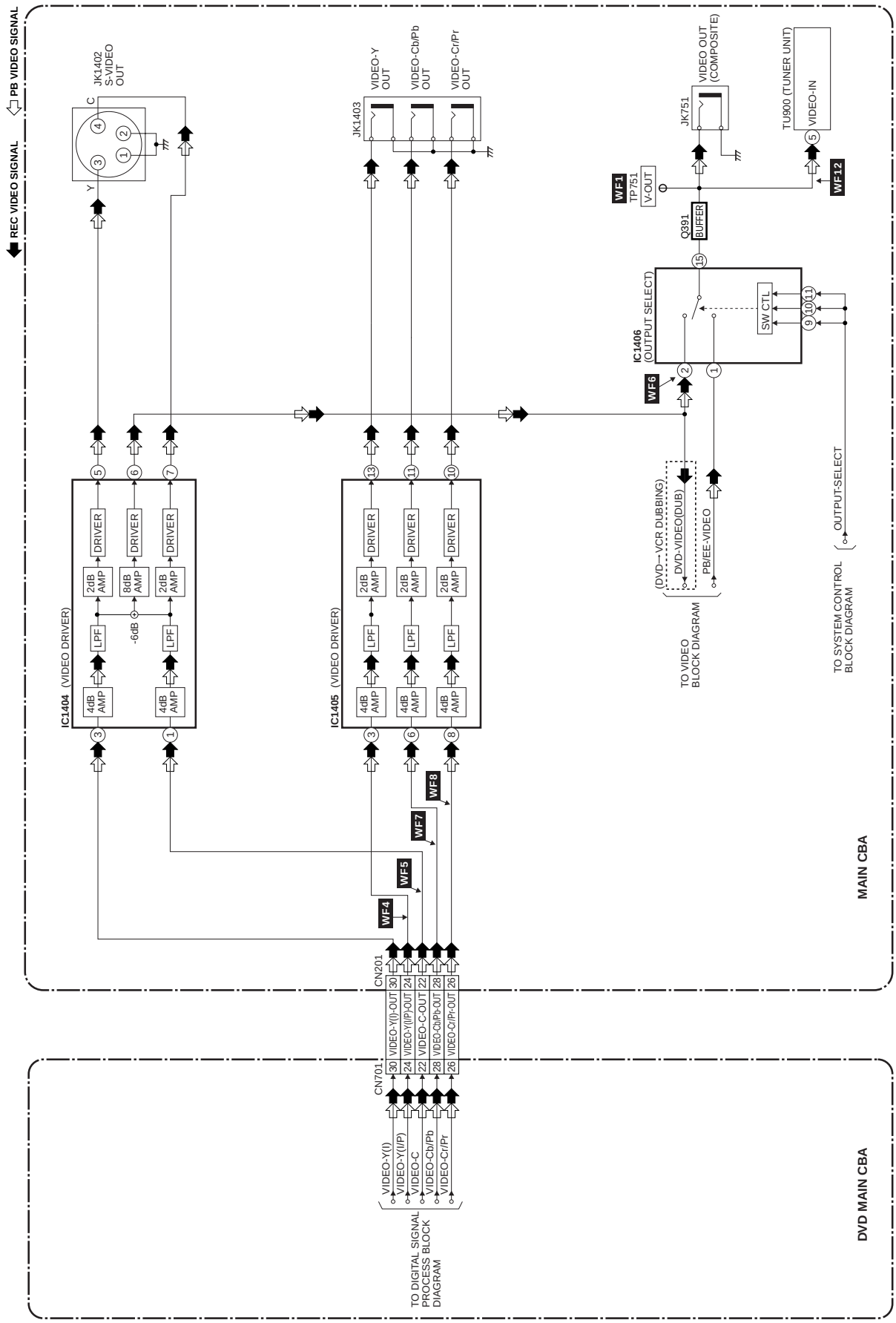
# Video Block Diagram



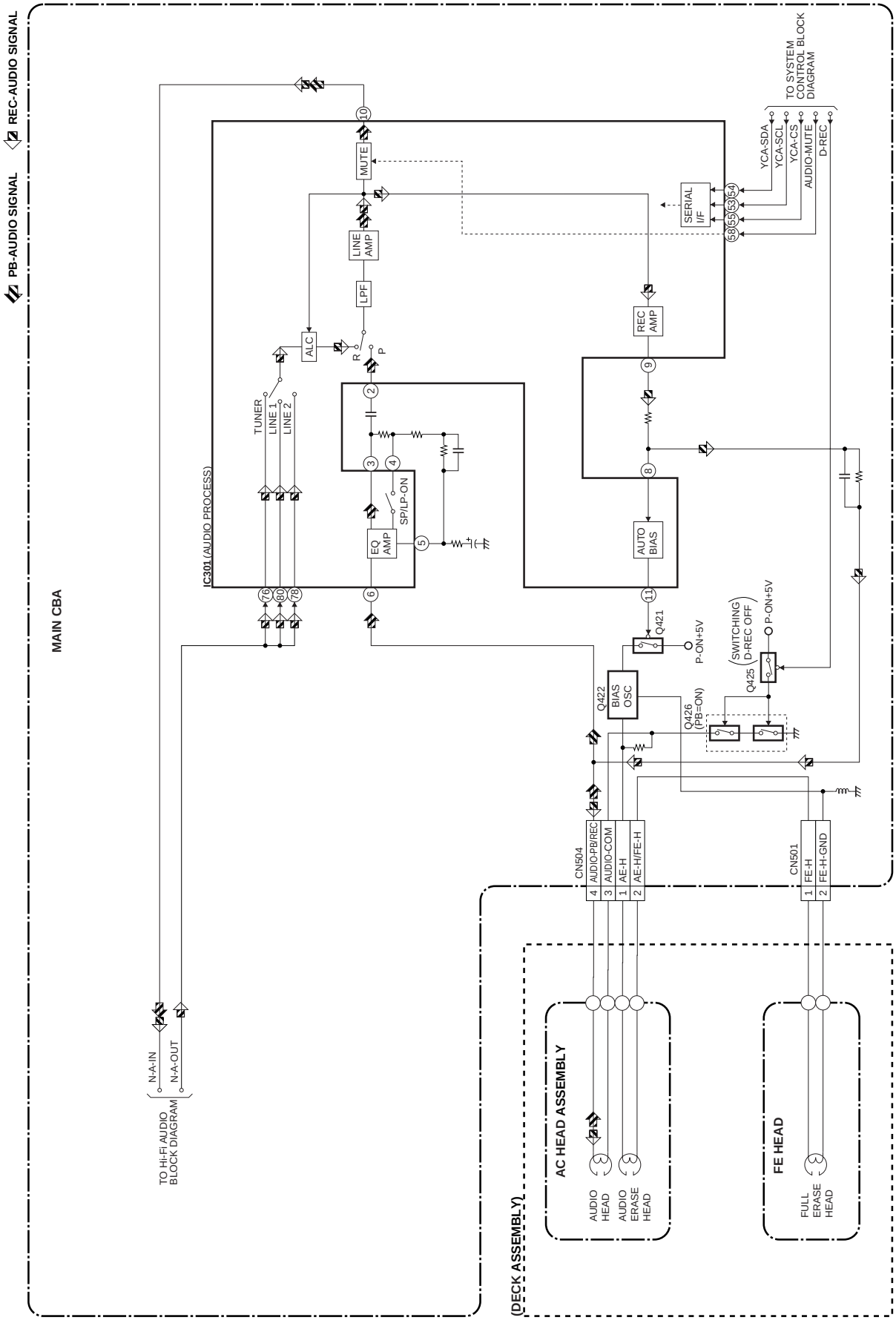
# Video Input Select Block Diagram



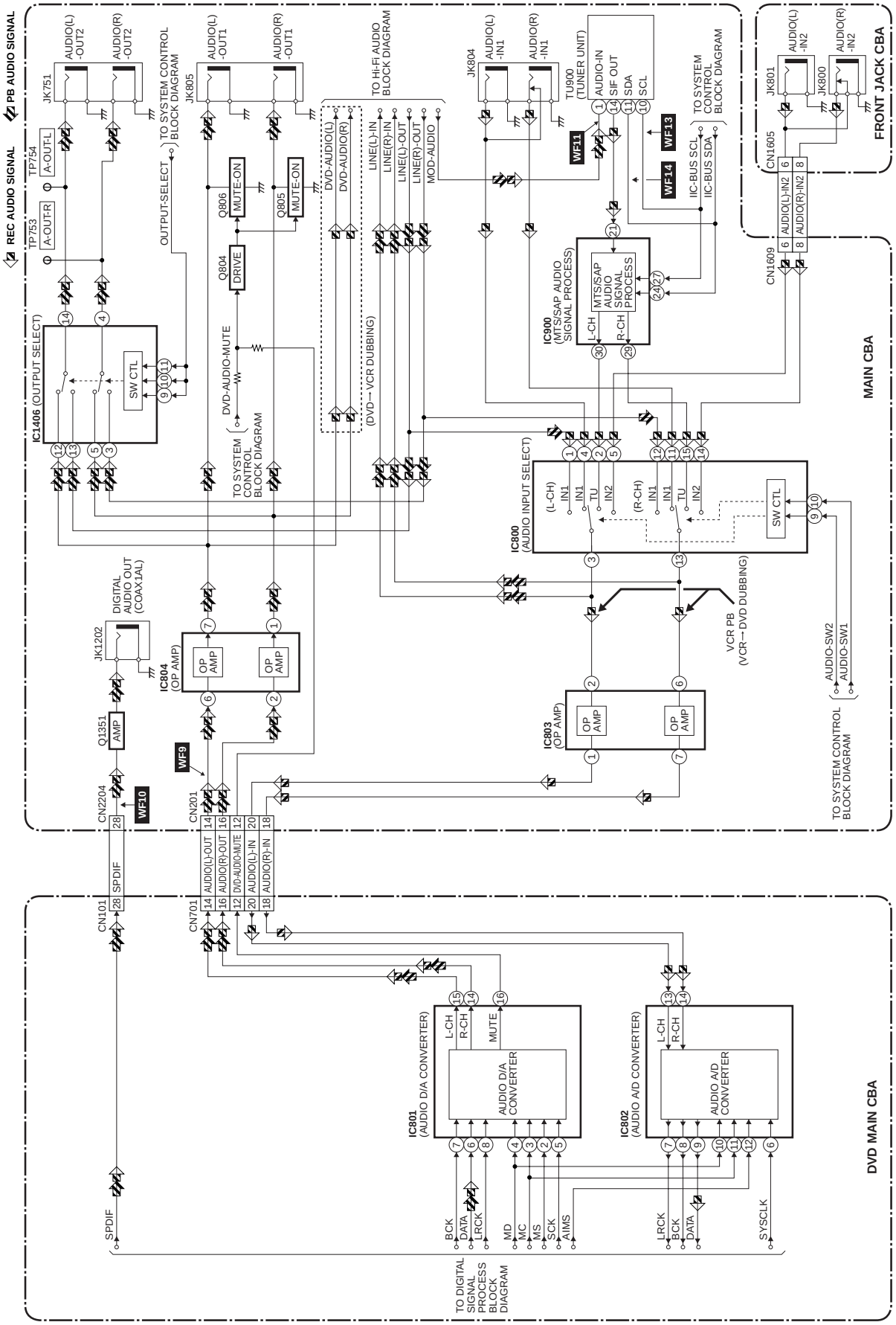
# Video Output Select Block Diagram



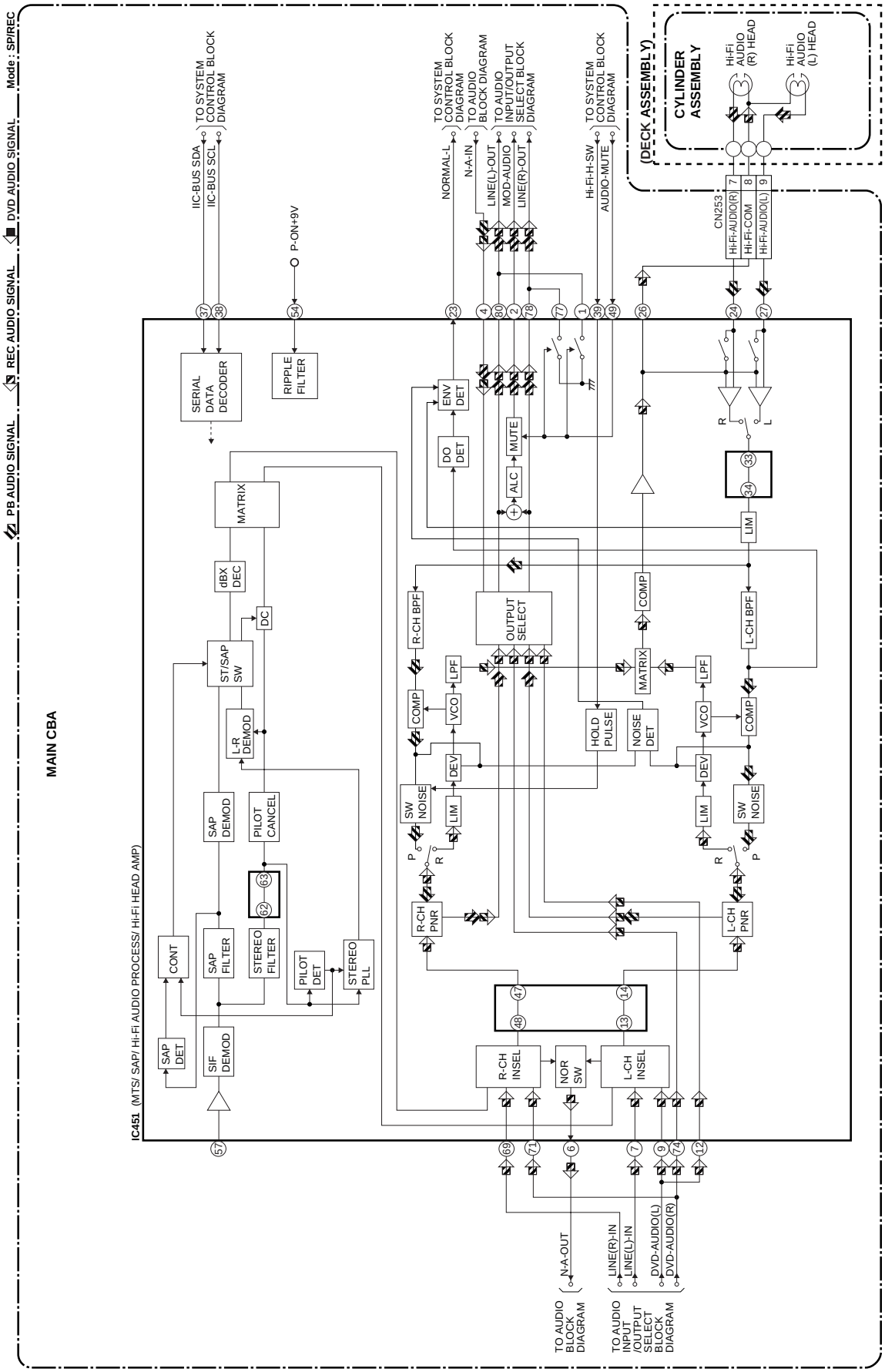
# Audio Block Diagram



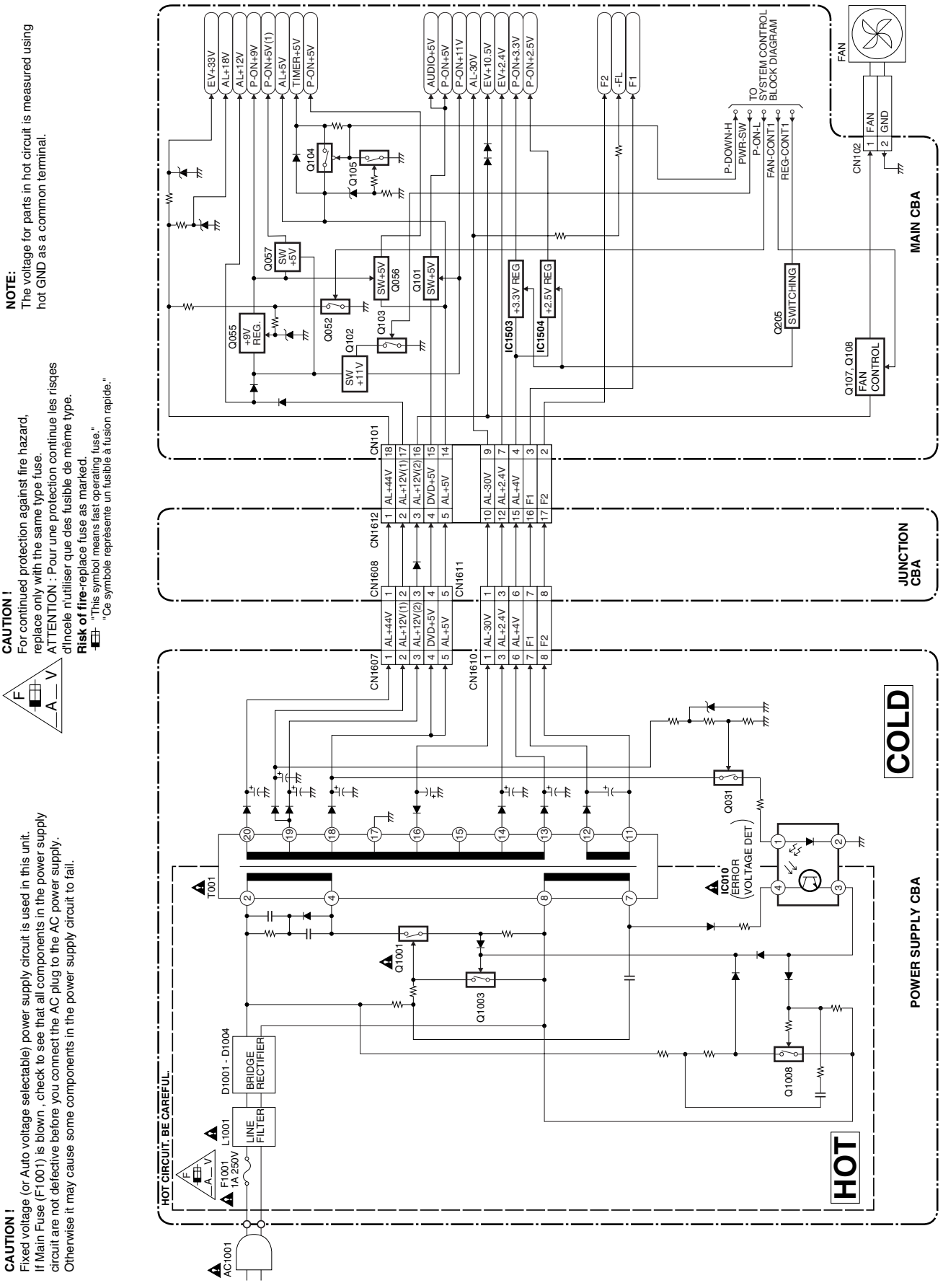
# Audio Input/Output Select Block Diagram



# Hi-Fi Audio Block Diagram



# Power Supply Block Diagram




**CAUTION !**
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit. If Main Fuse (F1001) is blown , check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

**CAUTION !**
For continued protection against fire hazard, replace only with the same type fuse.
ATTENTION : Pour une protection continue les risques d'Incele n'utiliser que des fusible de même type.
**Risk of fire**-replace fuse as marked.
"This symbol means fast operating fuse."
"Ce symbole représente un fusible à fusion rapide."

**NOTE:**
The voltage for parts in hot circuit is measured using hot GND as a common terminal.

# SCHEMATIC DIAGRAMS / CBA'S AND TEST POINTS

## Standard Notes

### WARNING

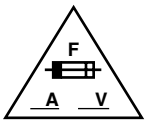
Many electrical and mechanical parts in this chassis have special characteristics. These characteristics often pass unnoticed and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts that have these special safety characteristics are identified in this manual and its supplements; electrical components having such features are identified by the mark "⚠" in the schematic diagram and the parts list. Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts that do not have the same safety characteristics as specified in the parts list may create shock, fire, or other hazards.

### Notes:

1. Do not use the part number shown on these drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since these drawings were prepared.
2. All resistance values are indicated in ohms ($K = 10^3$, $M = 10^6$).
3. Resistor wattages are 1/4W or 1/6W unless otherwise specified.
4. All capacitance values are indicated in μF ($P = 10^{-6}$ μF).
5. All voltages are DC voltages unless otherwise specified.

## LIST OF CAUTION, NOTES, AND SYMBOLS USED IN THE SCHEMATIC DIAGRAMS ON THE FOLLOWING PAGES:

### 1. CAUTION:




FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE.
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQES D'INCELE N'UTILISER QUE DES FUSIBLE DE MÊME TYPE.
RISK OF FIRE-REPLACE FUSE AS MARKED.

This symbol means fast operating fuse.
Ce symbole reprèsente un fusible à fusion rapide.

### 2. CAUTION:

Fixed Voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F1001) is blown, first check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

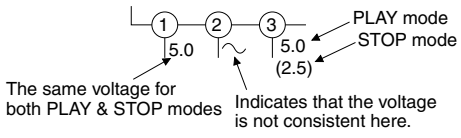
### 3. Note:

1. Do not use the part number shown on the drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since the drawings were prepared.
2. To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list section of the service manual.

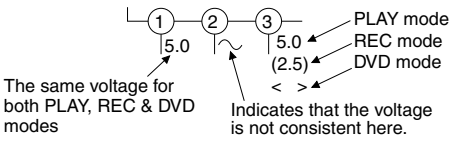
### 4. Mode: SP/REC

### 5. Voltage indications for PLAY and REC modes on the schematics are as shown below:

< DVD Section >




< VCR Section >

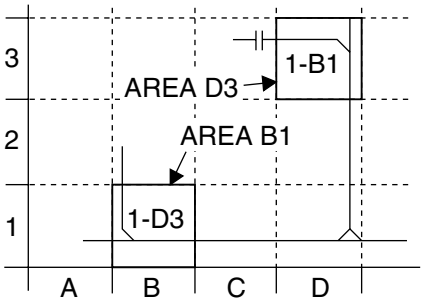



Unit: Volts

### 6. How to read converged lines

1-D3
- Distinction Area
- Line Number (1 to 3 digits)

Examples:
1. "1-D3" means that line number "1" goes to the line number "1" of the area "D3".
2. "1-B1" means that line number "1" goes to the line number "1" of the area "B1".




### 7. Test Point Information

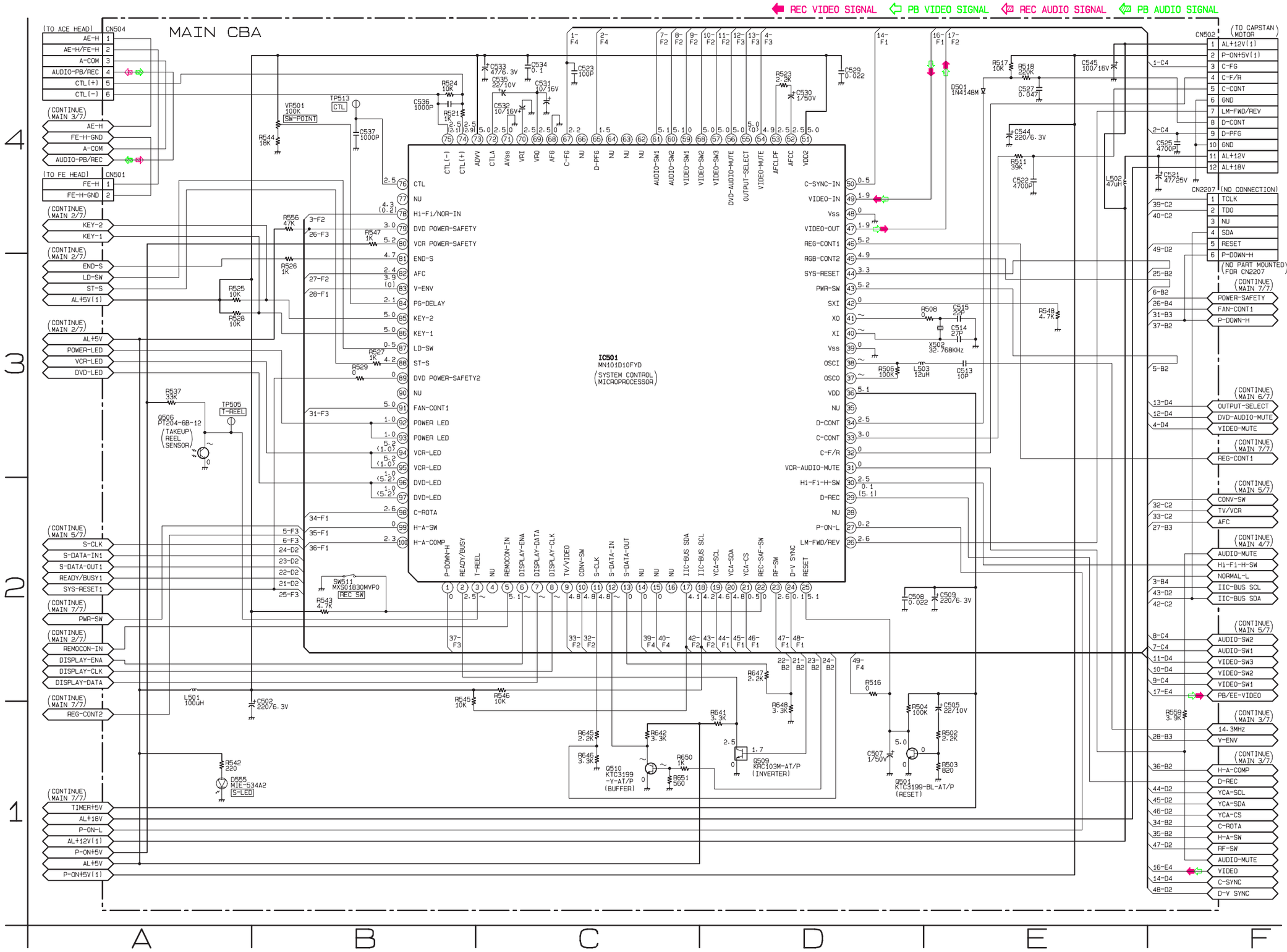
: Indicates a test point with a jumper wire across a hole in the PCB.

: Used to indicate a test point with a component lead on foil side.

: Used to indicate a test point with no test pin.

: Used to indicate a test point with a test pin.

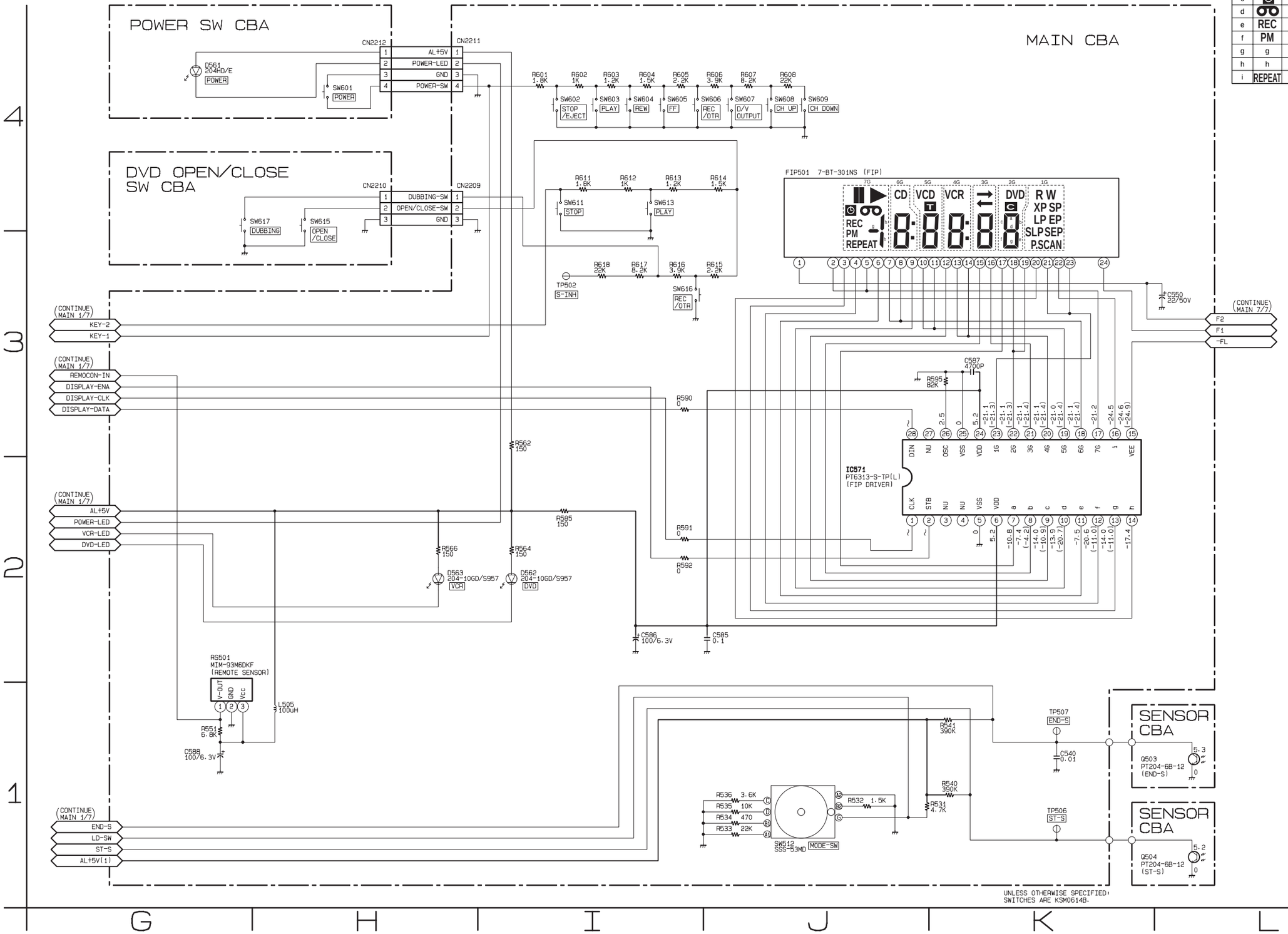
# Main 1/7 Schematic Diagram < VCR Section >



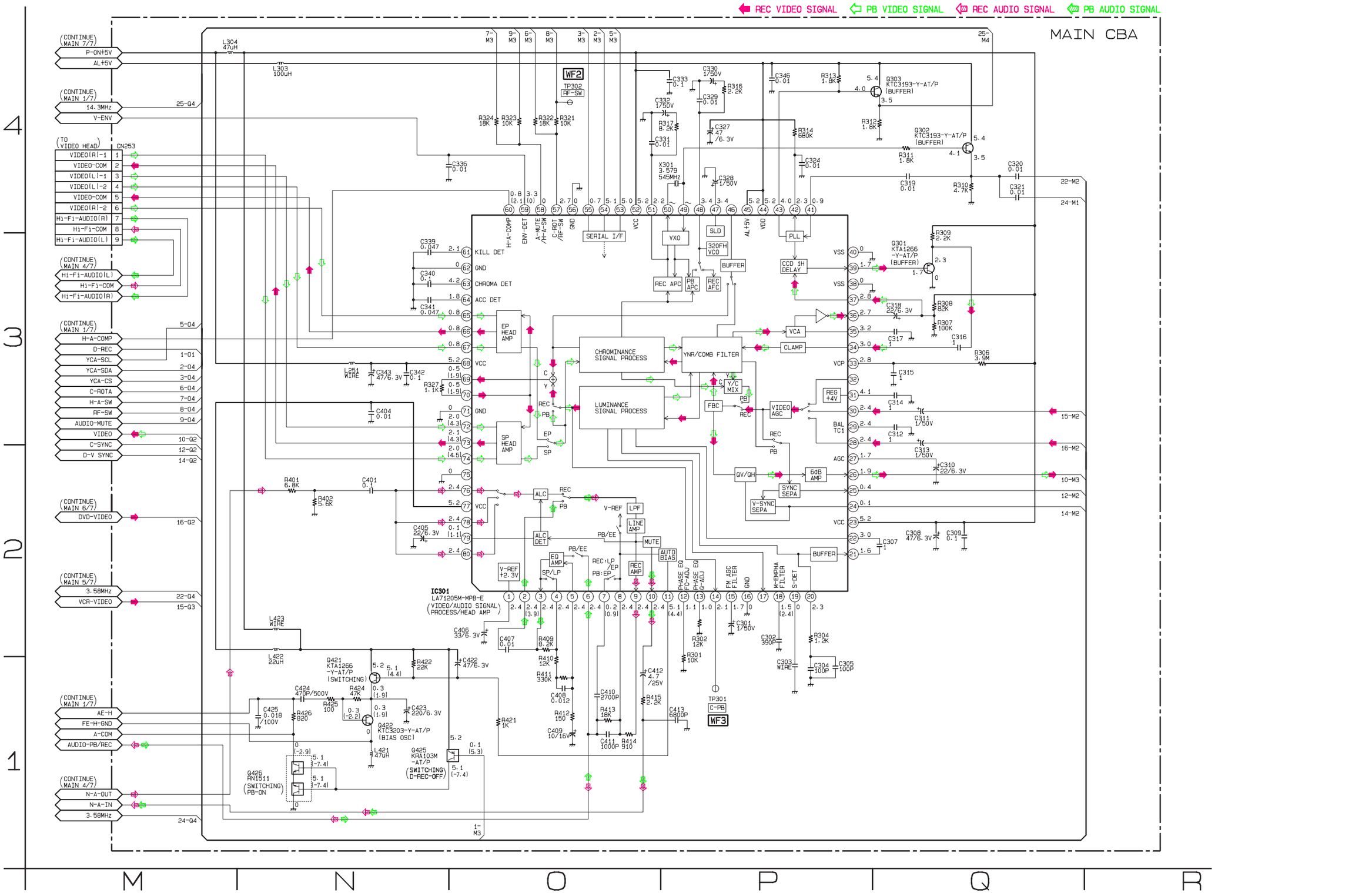
# Main 2/7, Power SW, DVD Open/Close SW & Sensor Schematic Diagram < VCR Section >

FIP501 MATRIX CHART

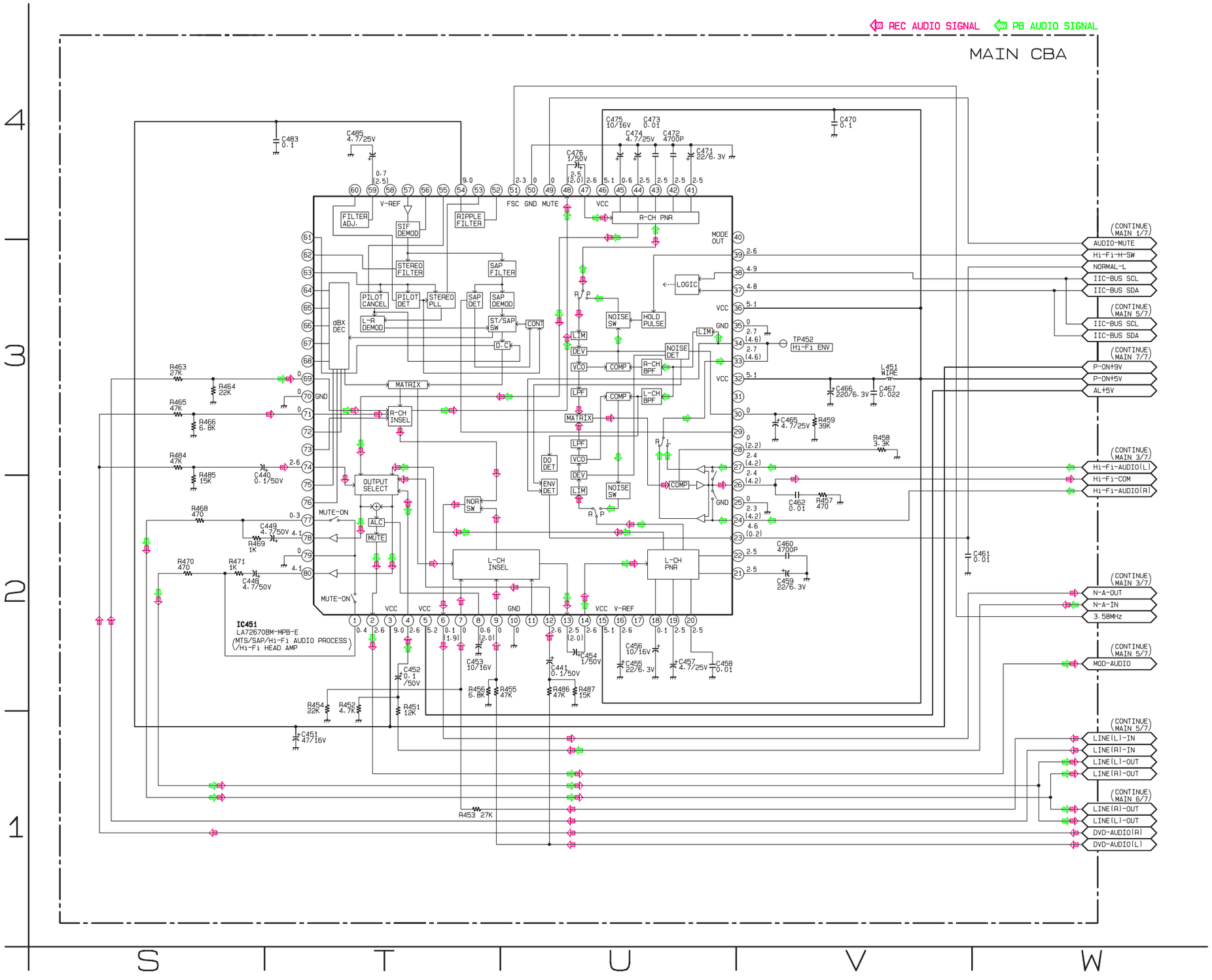
| | 7G | 6G | 5G | 4G | 3G | 2G | 1G |
|---|---|---|---|---|---|---|---|
| a | ▶ | a | a | a | a | a | XP |
| b | ❚❚ | b | b | b | b | b | SP |
| c | ◷ | c | c | c | c | c | LP |
| d | ∞ | d | d | d | d | d | EP |
| e | REC | e | e | e | e | e | SLP |
| f | PM | f | f | f | f | f | SEP |
| g | g | g | g | g | g | g | P.SCAN |
| h | h | : | T | : | ⟶ | C | W |
| i | REPEAT | CD | VCD | VCR | ⟵ | DVD | R |



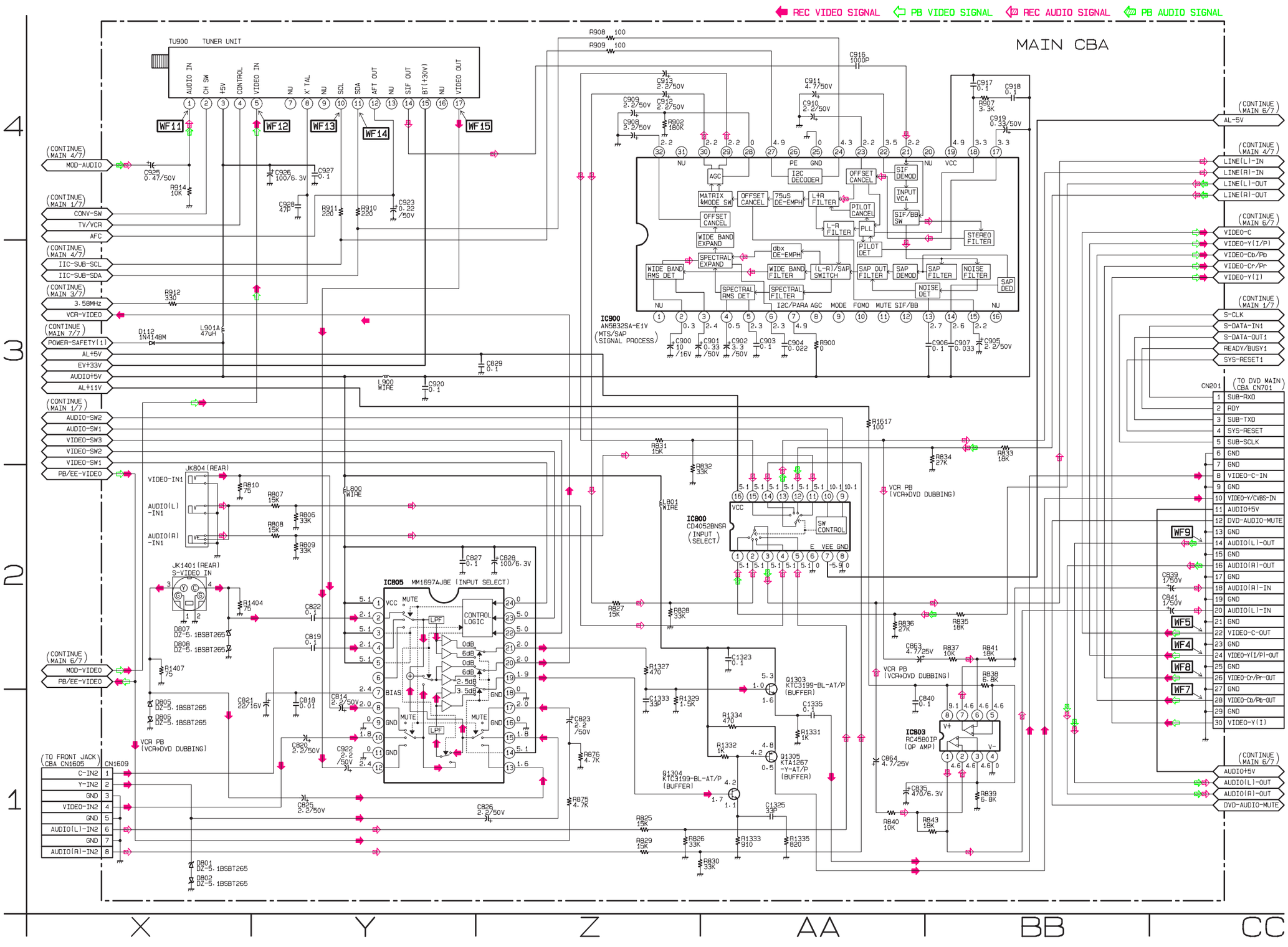
# Main 3/7 Schematic Diagram < VCR Section >



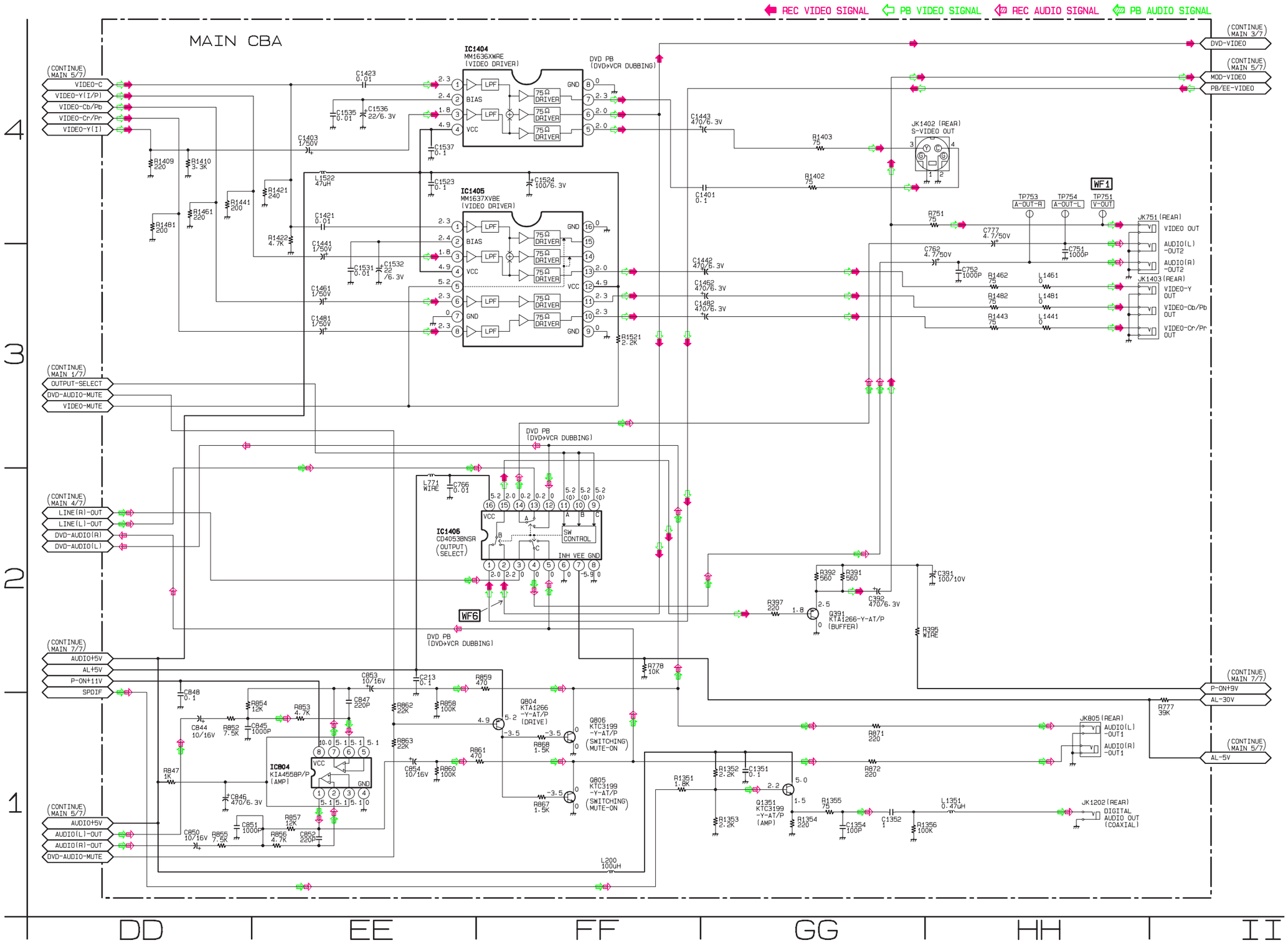
# Main 4/7 Schematic Diagram < VCR Section >



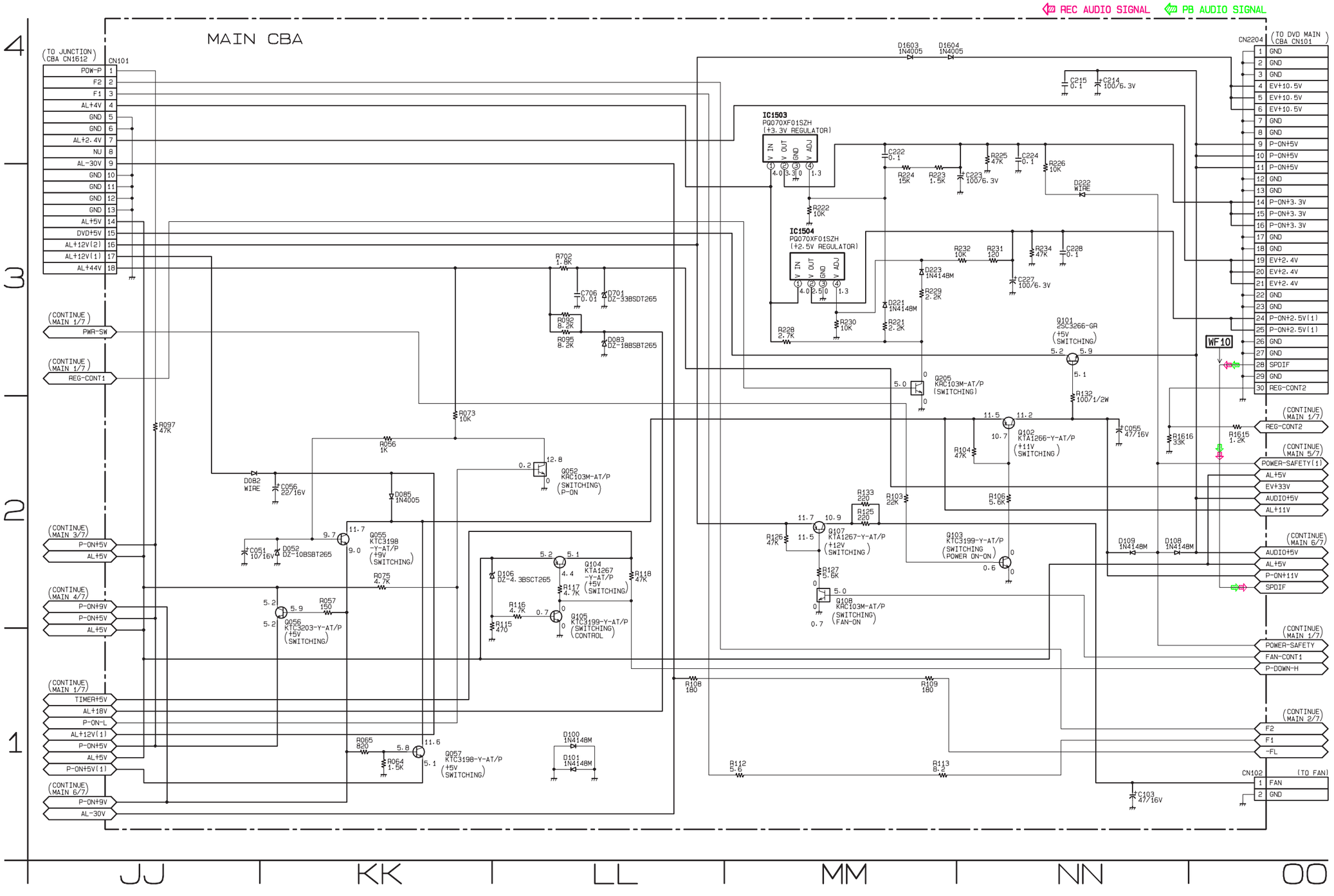
# Main 5/7 Schematic Diagram < VCR Section >



# Main 6/7 Schematic Diagram < VCR Section >



# Main 7/7 Schematic Diagram < VCR Section >

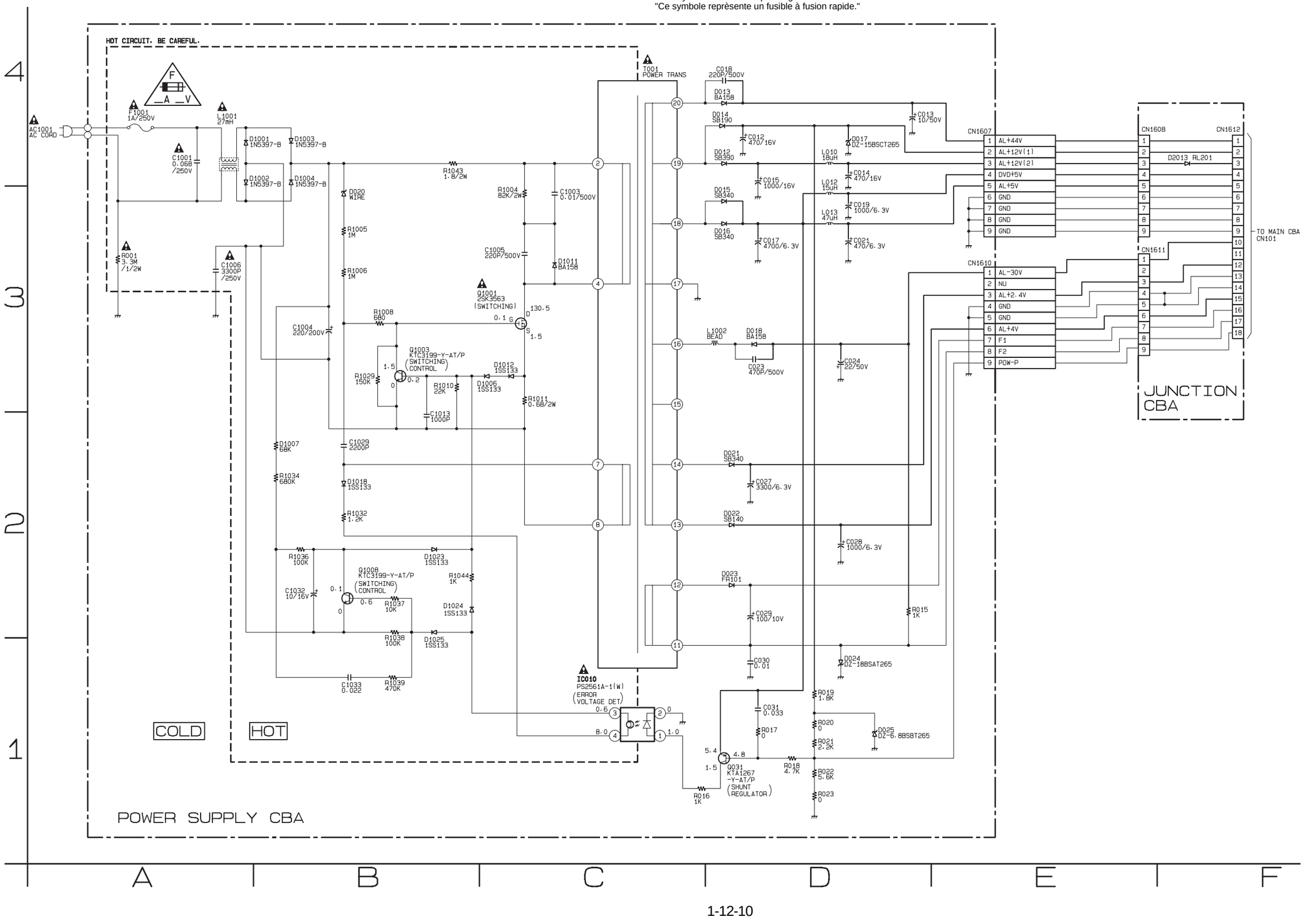


# Power Supply & Junction Schematic Diagram < VCR Section >

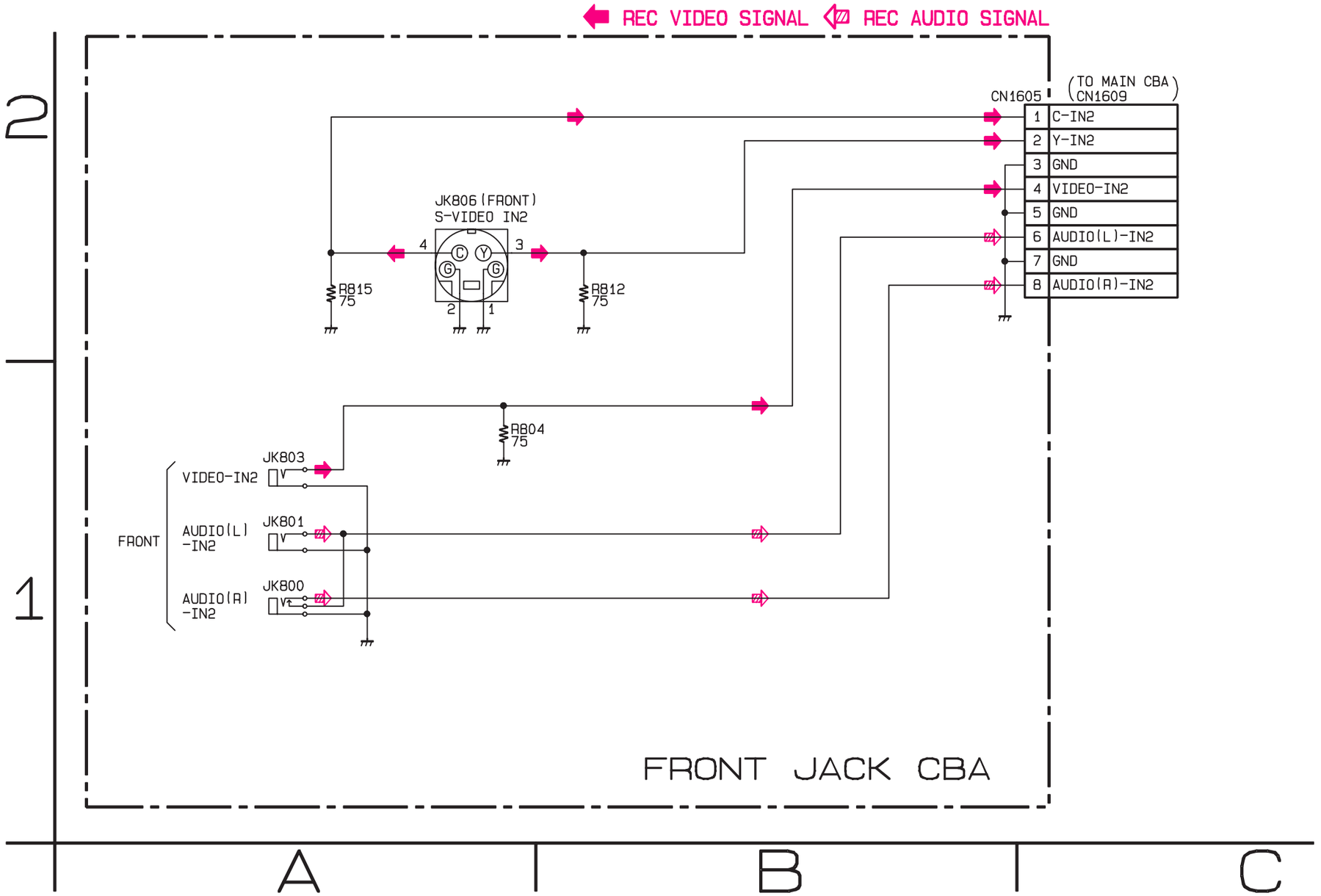
**CAUTION !**
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F1001) is blown , check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

**CAUTION !**
For continued protection against fire hazard, replace only with the same type fuse.
ATTENTION : Pour une protection continue les risqes d'Incele n'utiliser que des fusible de même type.
**Risk of fire**-replace fuse as marked.
"This symbol means fast operating fuse."
"Ce symbole représente un fusible à fusion rapide."

**NOTE:**
The voltage for parts in hot circuit is measured using hot GND as a common terminal.

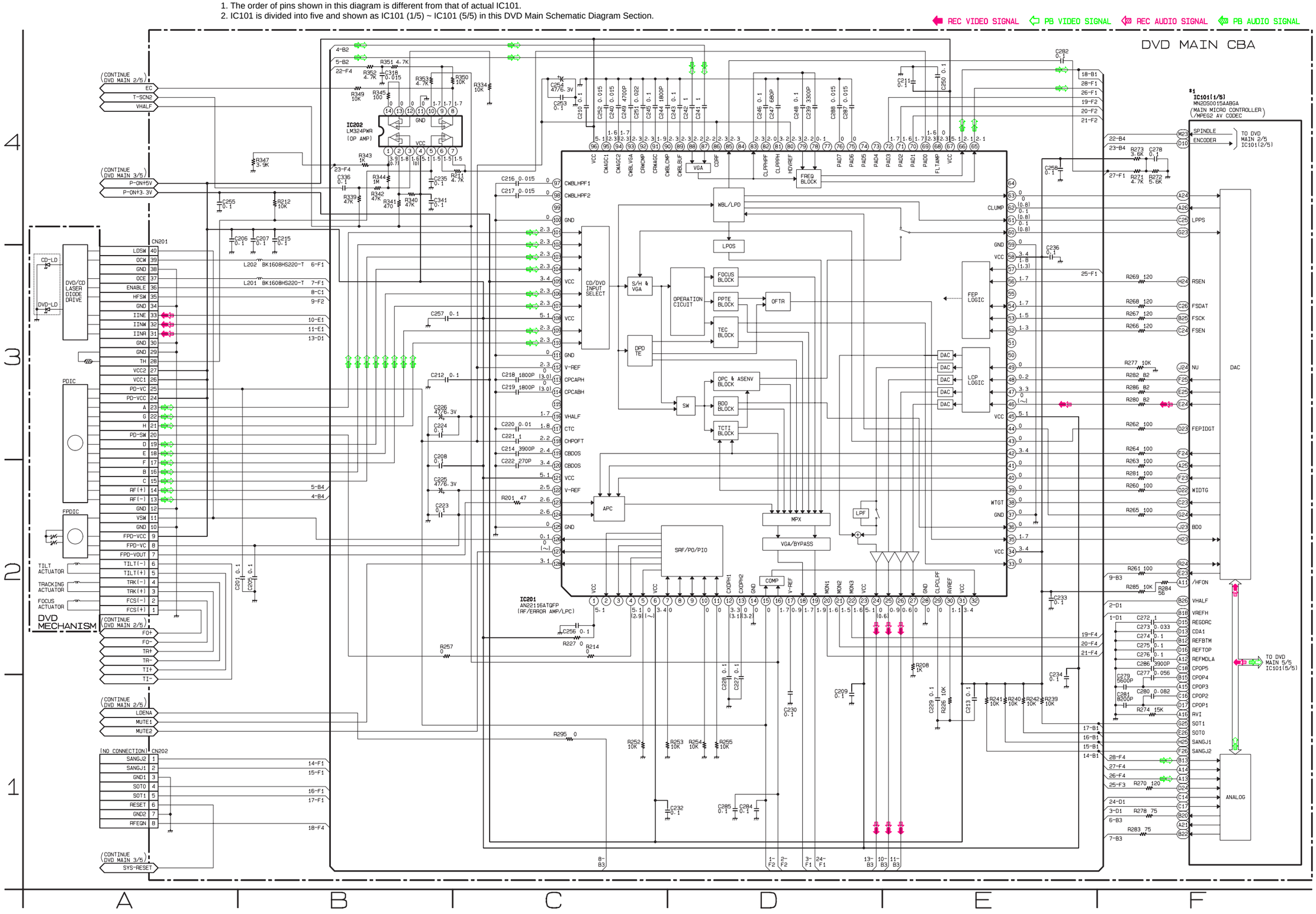


## Front Jack Schematic Diagram < VCR Section >



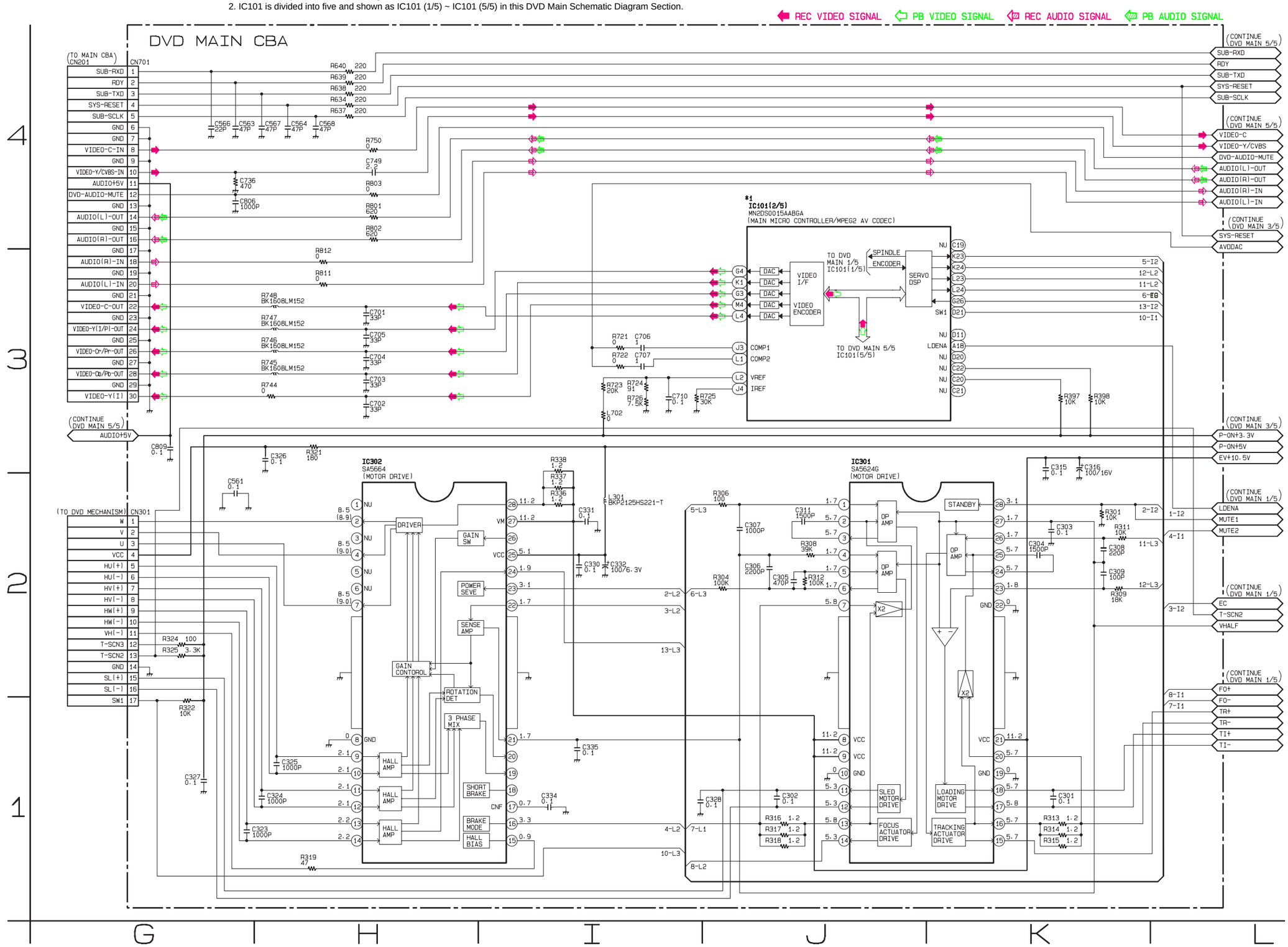
# DVD Main 1/5 Schematic Diagram < DVD Section >

**NOTE:**
1. The order of pins shown in this diagram is different from that of actual IC101.
2. IC101 is divided into five and shown as IC101 (1/5) ~ IC101 (5/5) in this DVD Main Schematic Diagram Section.



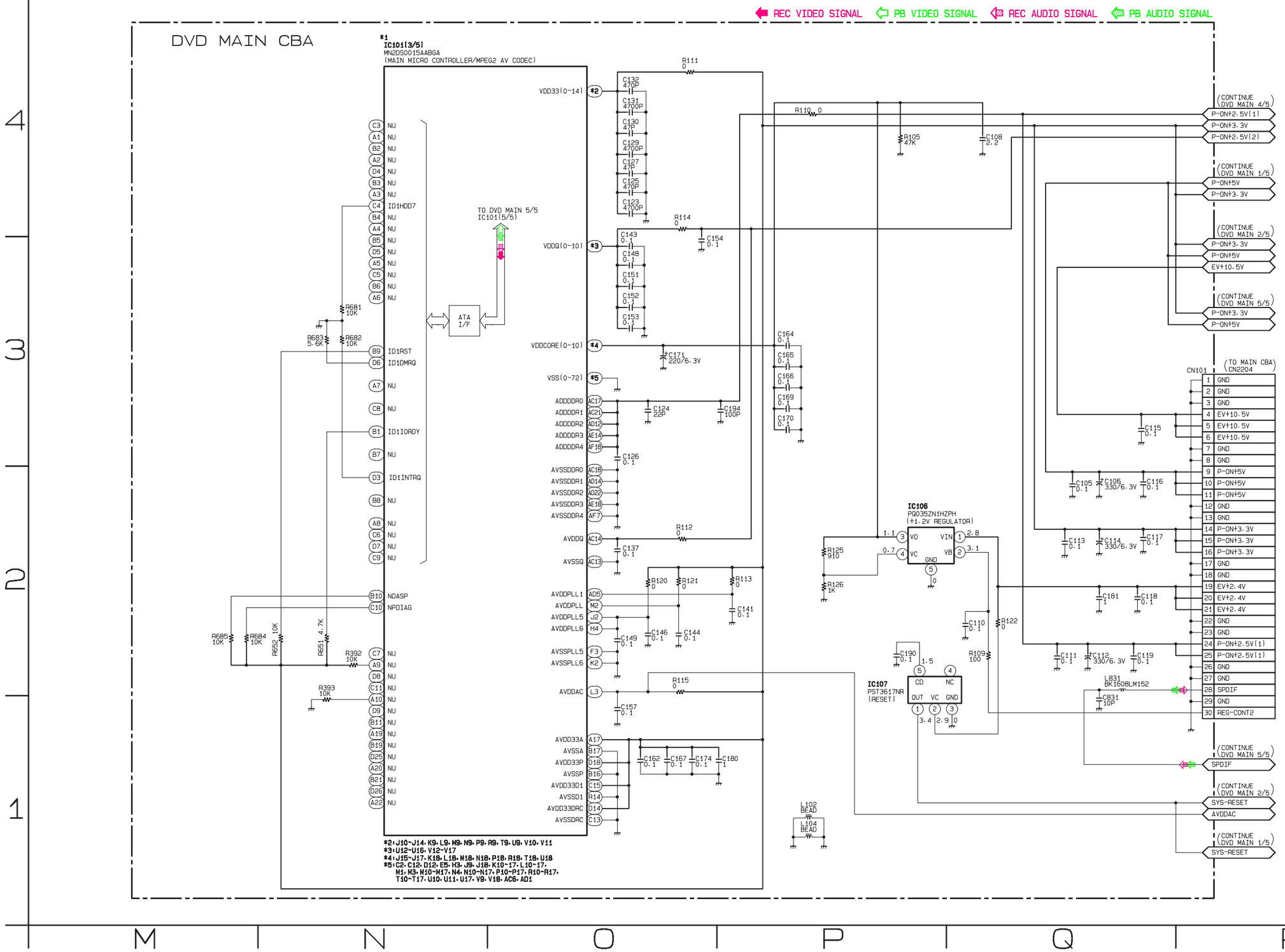
# DVD Main 2/5 Schematic Diagram < DVD Section >

**NOTE:**
1. The order of pins shown in this diagram is different from that of actual IC101.
2. IC101 is divided into five and shown as IC101 (1/5) ~ IC101 (5/5) in this DVD Main Schematic Diagram Section.



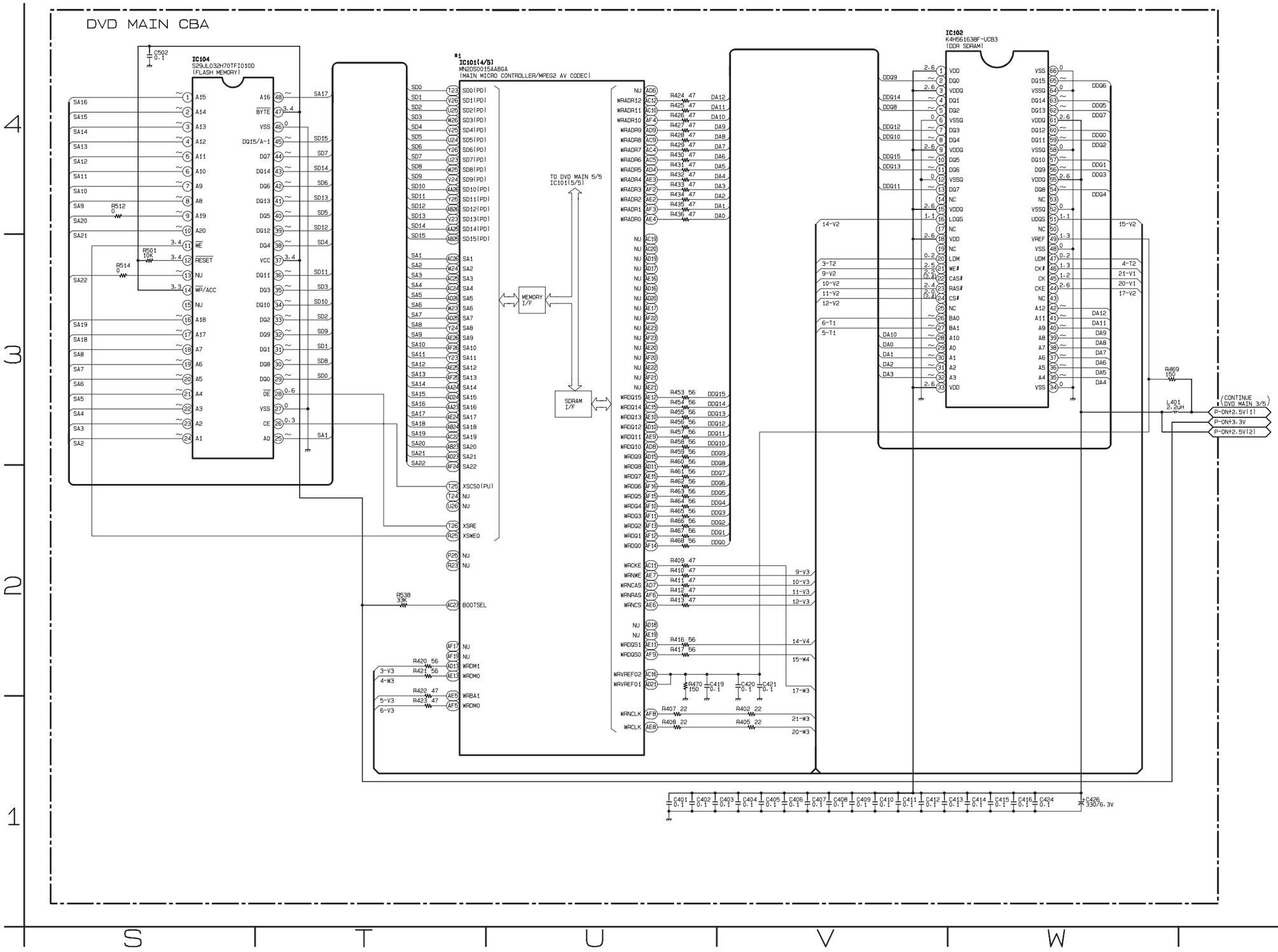
# DVD Main 3/5 Schematic Diagram < DVD Section >

**NOTE:**
1. The order of pins shown in this diagram is different from that of actual IC101.
2. IC101 is divided into five and shown as IC101 (1/5) ~ IC101 (5/5) in this DVD Main Schematic Diagram Section.



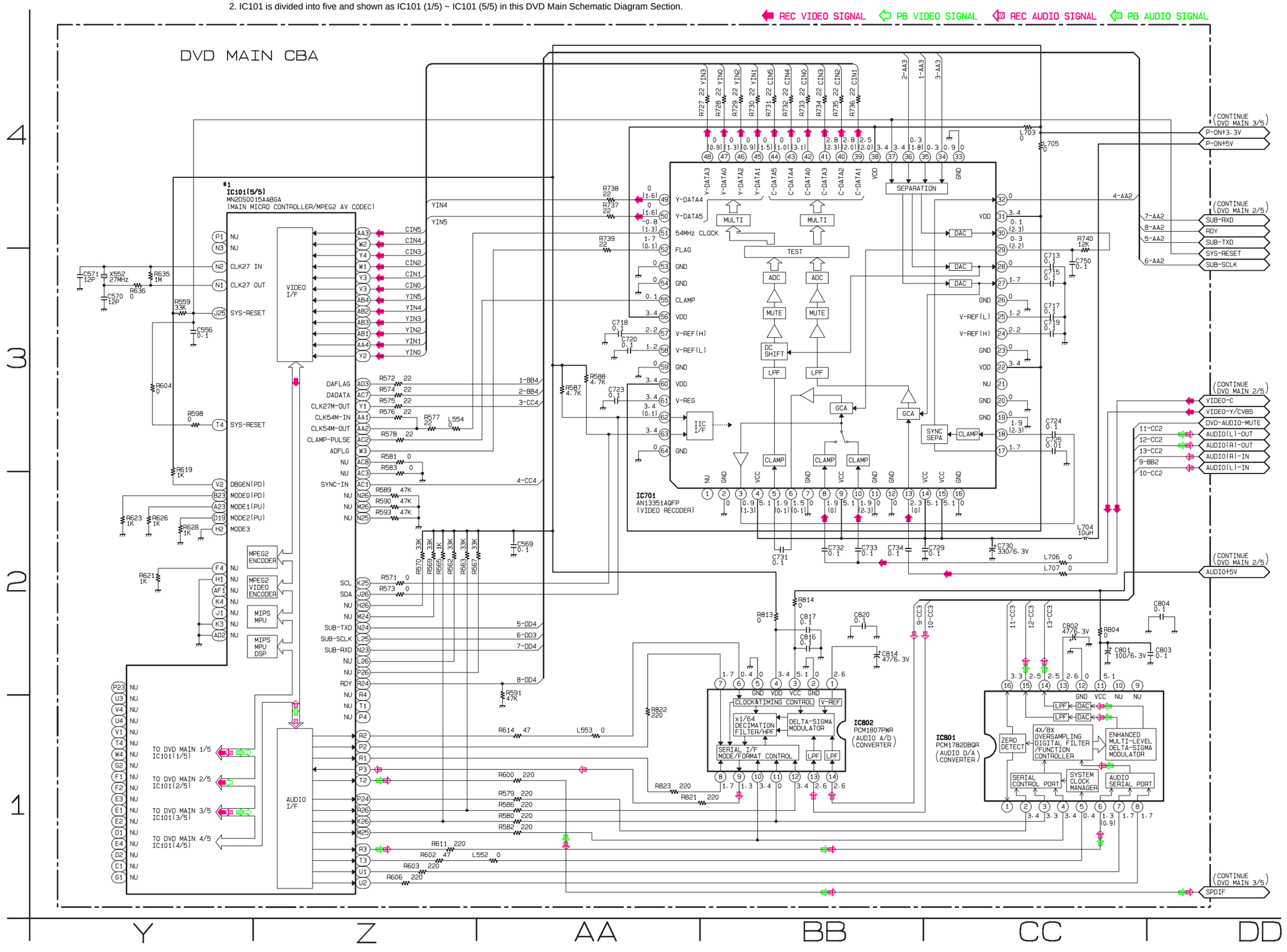
# DVD Main 4/5 Schematic Diagram < DVD Section >

**NOTE:**
1. The order of pins shown in this diagram is different from that of actual IC101.
2. IC101 is divided into five and shown as IC101 (1/5) ~ IC101 (5/5) in this DVD Main Schematic Diagram Section.

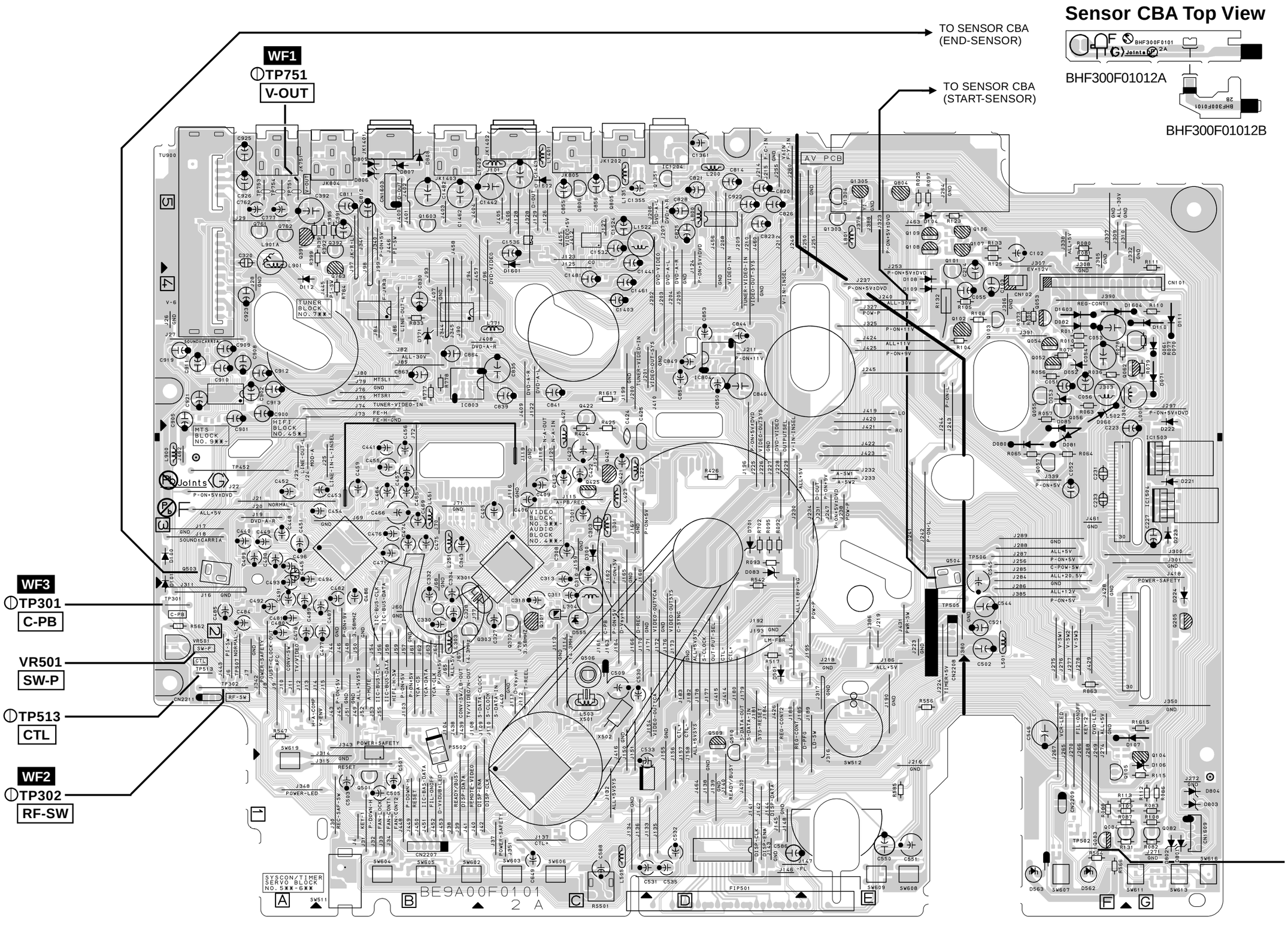


# DVD Main 5/5 Schematic Diagram < DVD Section >

**NOTE:**
1. The order of pins shown in this diagram is different from that of actual IC101.
2. IC101 is divided into five and shown as IC101 (1/5) ~ IC101 (5/5) in this DVD Main Schematic Diagram Section.



## Main CBA Top View




## Sensor CBA Top View



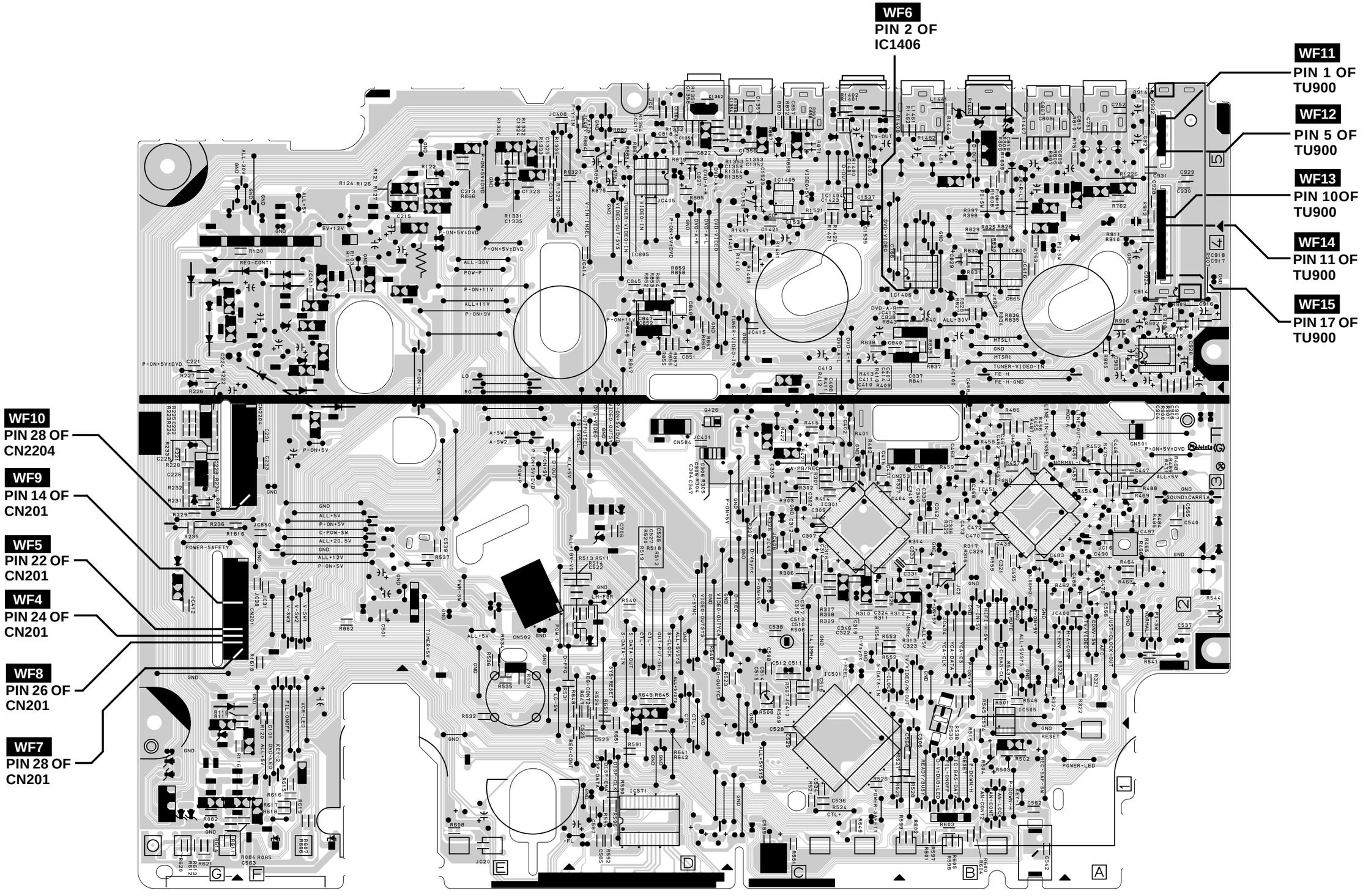

BHF300F01012A

BHF300F01012B



BE9A00F01012A

## Main CBA Bottom View



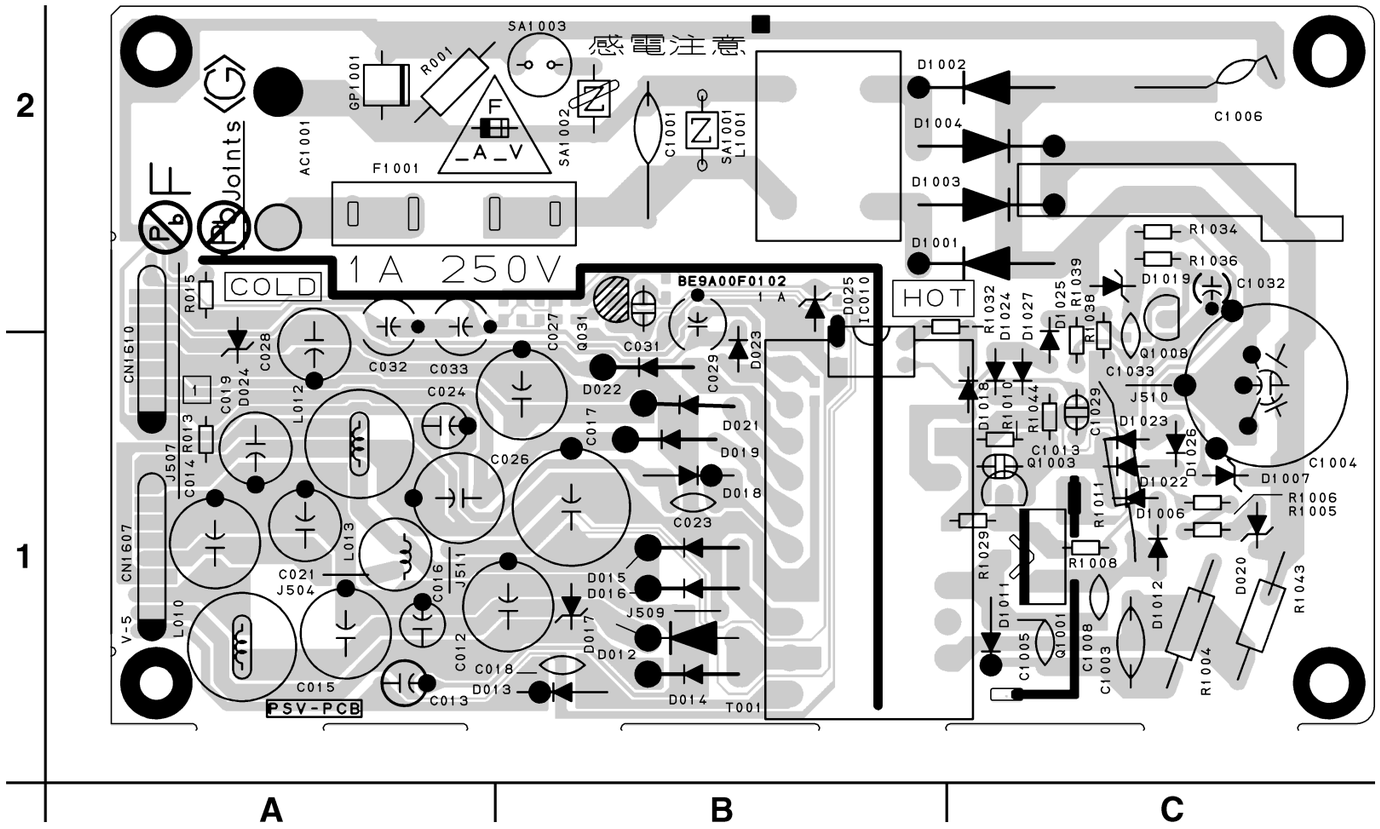
# Power Supply CBA Top View

**CAUTION !**
For continued protection against fire hazard,
replace only with the same type fuse.
ATTENTION : Pour une protection continue les risqes
d'Incele n'utiliser que des fusible de même type.
**Risk of fire**-replace fuse as marked.
"This symbol means fast operating fuse."
"Ce symbole représente un fusible à fusion rapide."

**CAUTION !**
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F1001) is blown , check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply.
Otherwise it may cause some components in the power supply circuit to fail.

**Because a hot chassis ground is present in the power supply circut, an isolation transformer must be used. Also, in order to have the ability to increase the input slowly, when troubleshooting this type power supply circuit, a variable isolation transformer is required.**

**NOTE:**
The voltage for parts in hot circuit is measured using
hot GND as a common terminal.



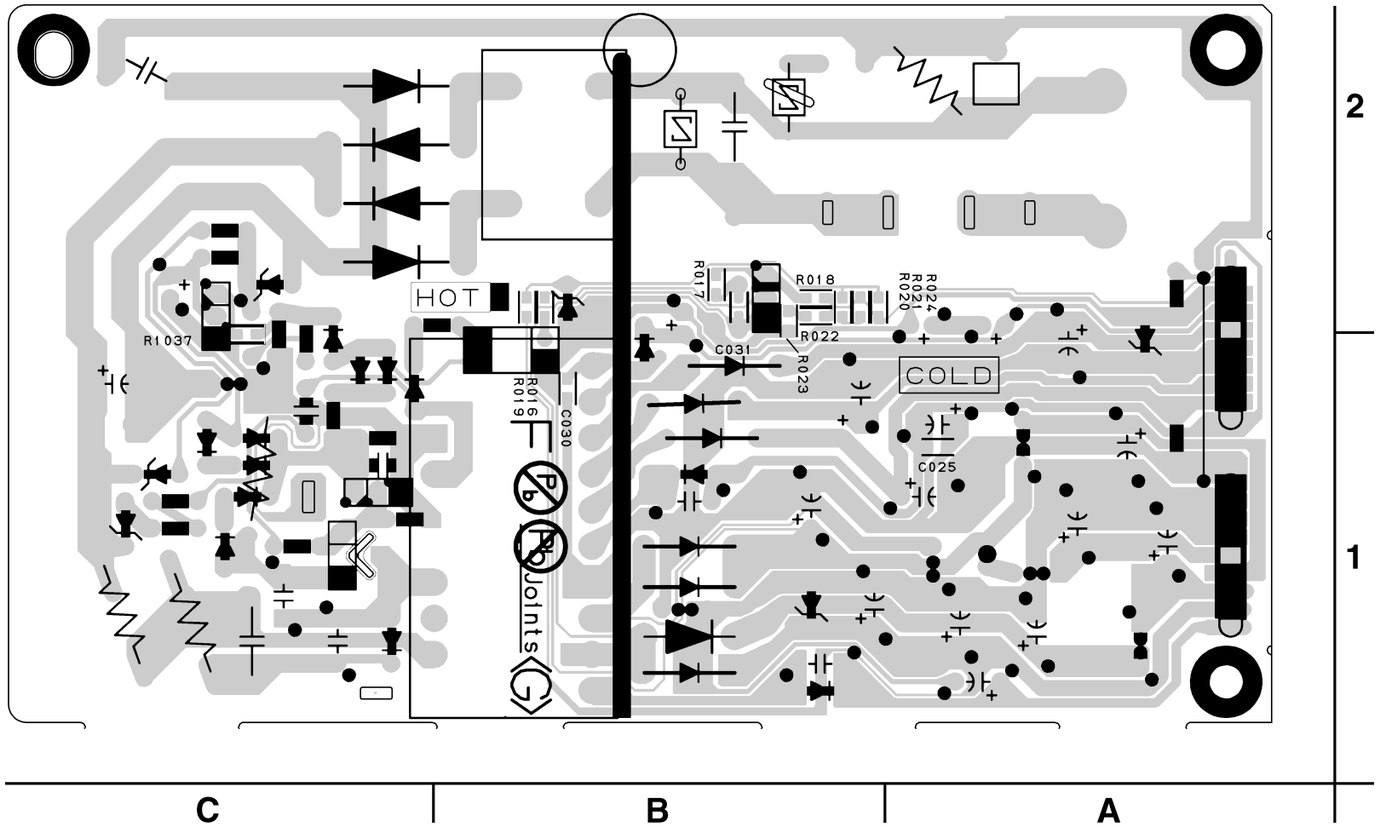
# Power Supply CBA Bottom View

**CAUTION !**
For continued protection against fire hazard,
replace only with the same type fuse.
ATTENTION : Pour une protection continue les risqes
d'Incele n'utiliser que des fusible de même type.
**Risk of fire**-replace fuse as marked.
"This symbol means fast operating fuse."
"Ce symbole représente un fusible à fusion rapide."

**CAUTION !**
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F1001) is blown , check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply.
Otherwise it may cause some components in the power supply circuit to fail.

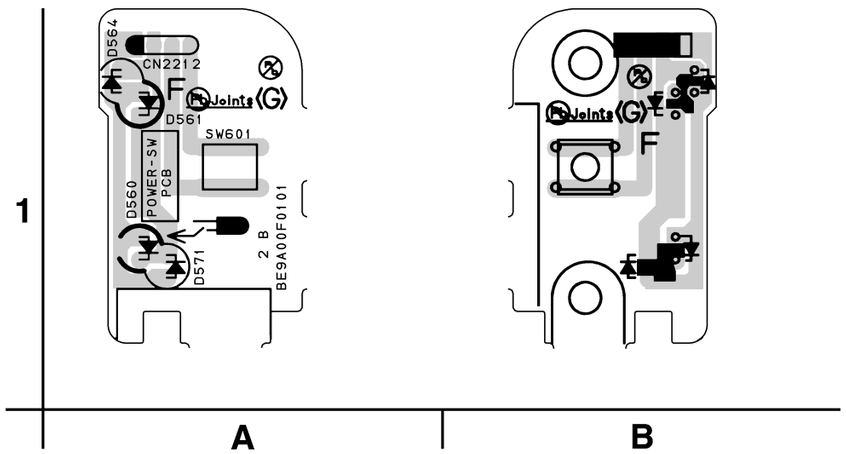
**Because a hot chassis ground is present in the power supply circut, an isolation transformer must be used. Also, in order to have the ability to increase the input slowly, when troubleshooting this type power supply circuit, a variable isolation transformer is required.**

**NOTE:**
The voltage for parts in hot circuit is measured using hot GND as a common terminal.



## Power SW CBA Top View

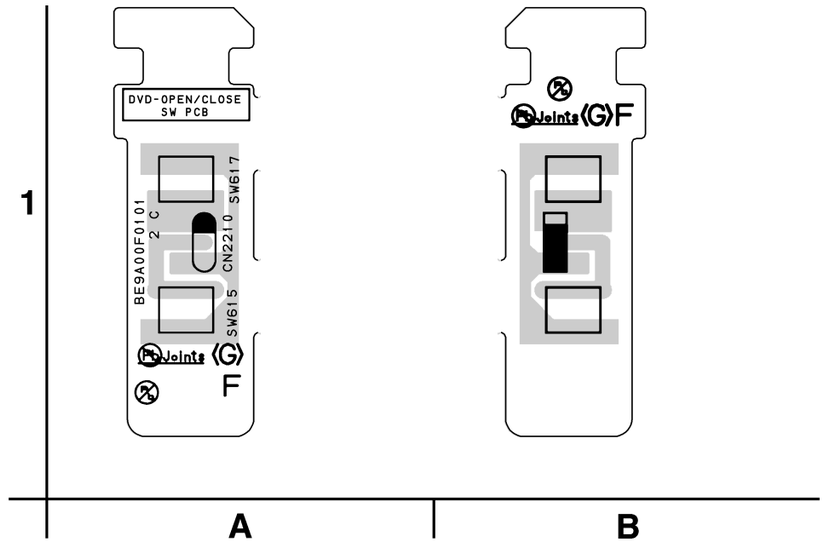
## Power SW CBA Bottom View




BE9A00F01012B

## DVD Open/Close SW CBA Top View

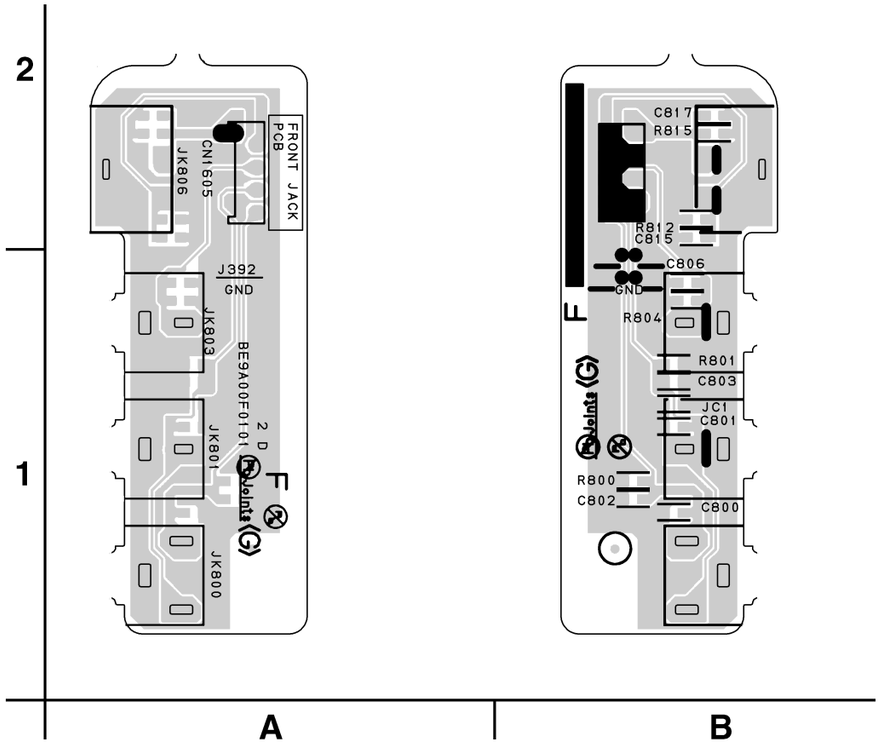
## DVD Open/Close SW CBA Bottom View




BE9A00F01012C

## Front Jack CBA Top View

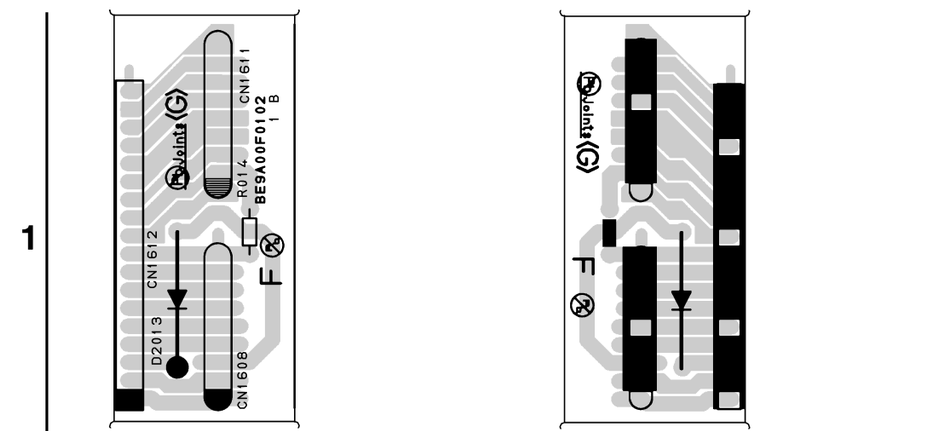
## Front Jack CBA Bottom View




BE9A00F01012D

## Junction CBA Top View

## Junction CBA Bottom View

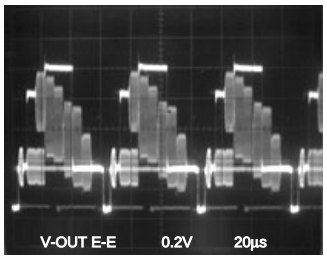



BE9A00F01021B

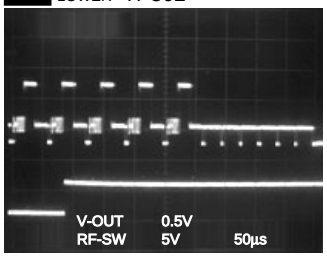
# WAVEFORMS

**NOTE:**
Input: COLOR BAR SIGNAL (WITH 1KHz AUDIO SIGNAL)

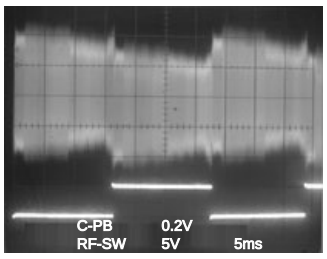
**WF1** TP751



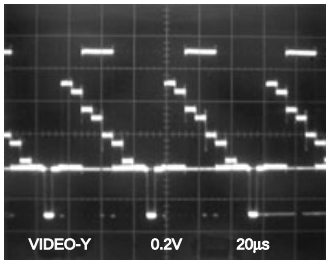

**WF1** UPPER TP751
**WF2** LOWER TP302



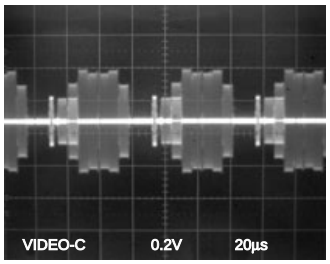

**WF3** UPPER TP301
**WF2** LOWER TP302



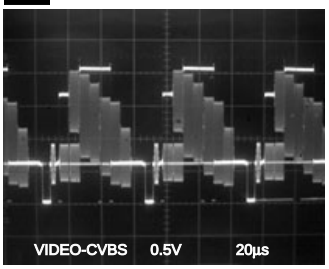

**WF4** Pin 24 of CN201



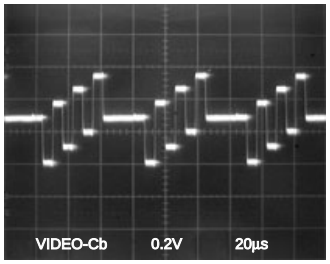

**WF5** Pin 22 of CN201



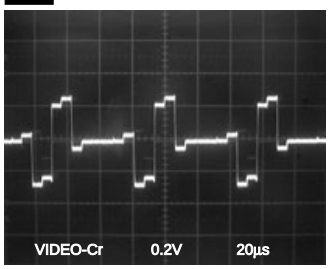

**WF6** Pin 2 of IC1406



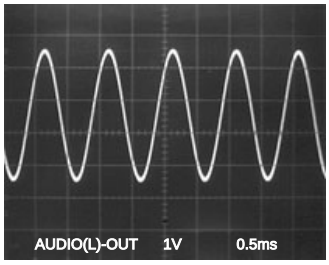

**WF7** Pin 28 of CN201



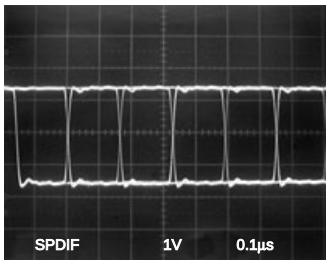

**WF8** Pin 26 of CN201



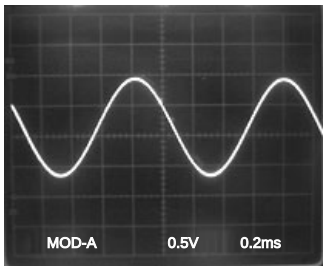

**WF9** Pin 14 of CN201



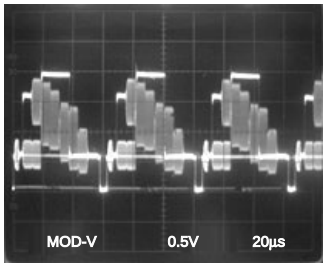

**WF10** Pin 28 of CN2204



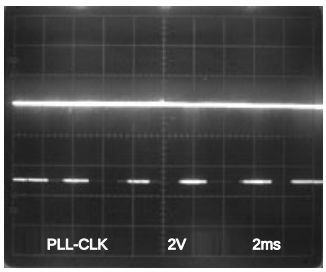

**WF11** Pin 1 of TU900



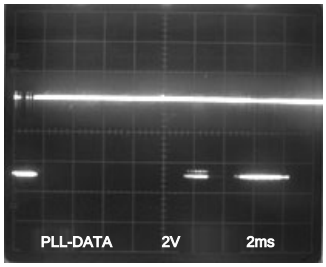

**WF12** Pin 5 of TU900



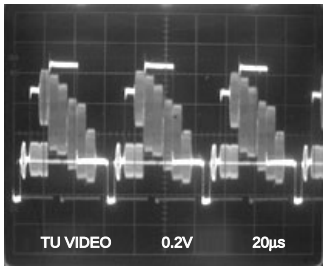

**WF13** Pin 10 of TU900



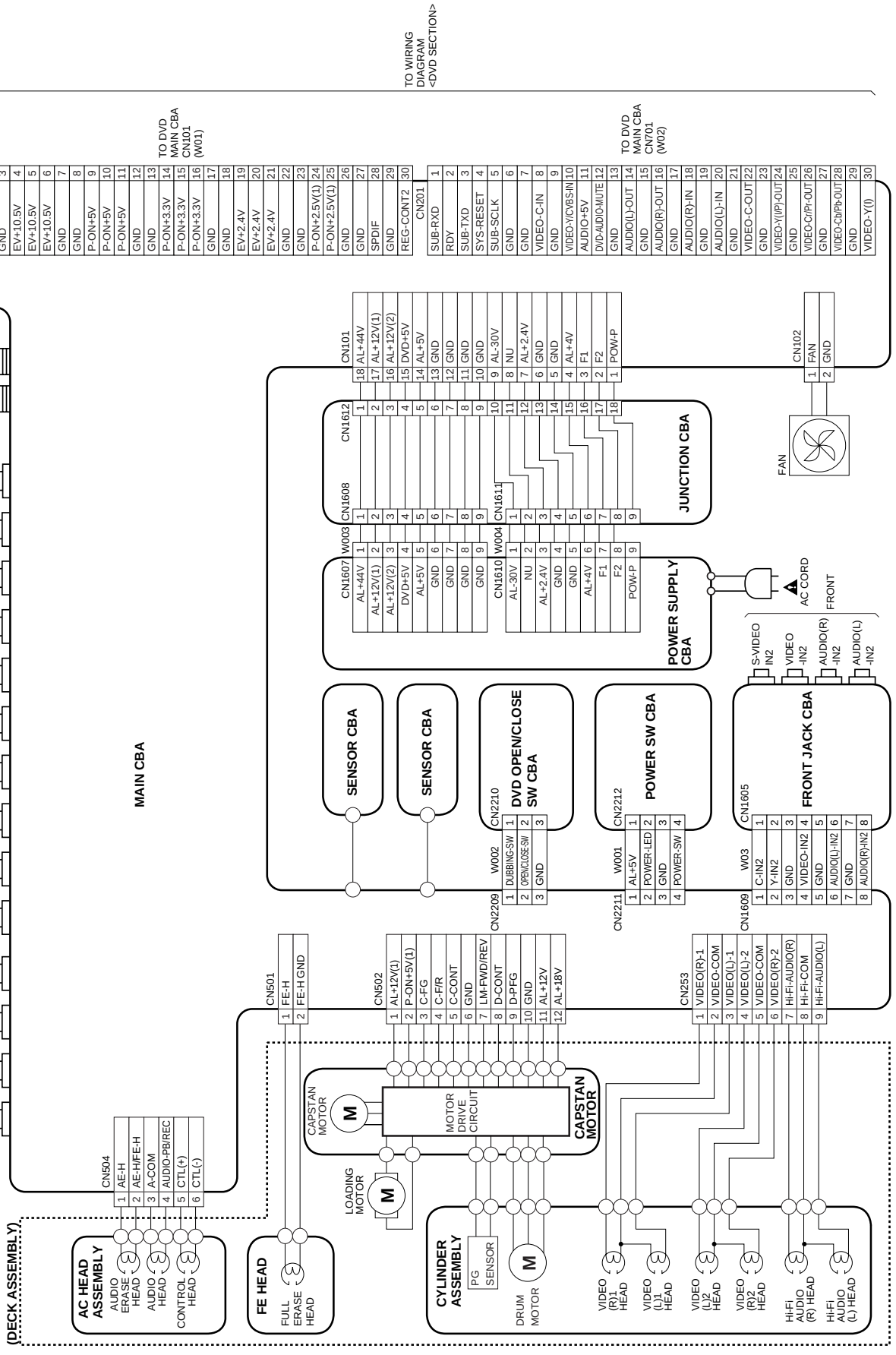

**WF14** Pin 11 of TU900



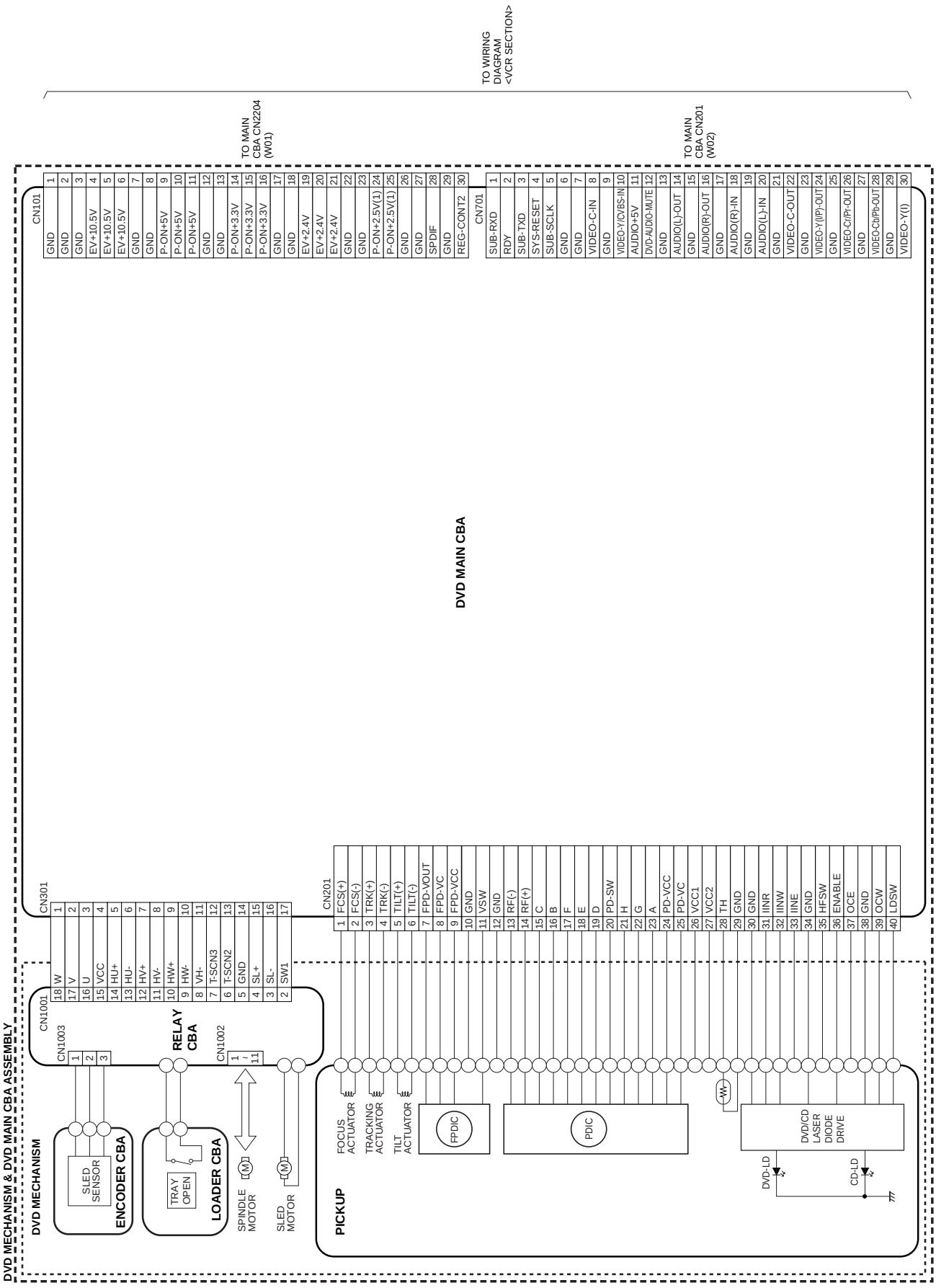

**WF15** Pin 17 of TU900



# WIRING DIAGRAM < VCR SECTION >



# WIRING DIAGRAM < DVD SECTION >



# SYSTEM CONTROL TIMING CHARTS

## < VCR Section >

### Mode SW: LD-SW

| LD-SW Position detection A/D Input voltage Limit (Calculated voltage) | Symbol |
|---|---|
| 3.76 V ~ 4.50 V (4.12 V) | EJ |
| 4.51 V ~ 5.00 V (5.00 V) | CL |
| 0.00 V ~ 0.25 V (0.00 V) | SB |
| 1.06 V ~ 1.50 V (1.21 V) | TL |
| 0.66 V ~ 1.05 V (0.91 V) | FB |
| 1.99 V ~ 2.60 V (2.17 V) | SF |
| 1.51 V ~ 1.98 V (1.80 V) | SM |
| 3.20 V ~ 3.75 V (3.40 V) | AU |
| 0.26 V ~ 0.65 V (0.44 V) | AL |
| 4.51 V ~ 5.00 V (5.00 V) | SS |
| 2.61 V ~ 3.19 V (2.97 V) | RS |

**Note:**

**Note:** EJ → RS: Loading FWD (LM-FWD / REV “H”)
RS → EJ: Loading REV (LM-FWD / REV “L”)
Stop (A) = Loading
Stop (B) = Unloading

**Note:**

| Symbol | Loading Status |
|---|---|
| EJ | Eject |
| CL | Eject ~ REW Reel |
| SB | REW Reel ~ Stop (B) |
| TL | Stop (B) ~ Brake Cancel |
| FB | Brake Cancel ~ FF / REW |
| SF | FF / REW ~ Stop (M), (FF / REW) |
| SM | Stop (M), (FF / REW) ~ Stop (A) |
| AU | Stop (A) ~ Play / REC |
| AL | Play / REC ~ Still / Slow |
| SS | Still / Slow ~ RS (REW Search) |
| RS | RS (REW Search) |

## Still/Slow Control Frame Advance Timing Chart

### 1) SP Mode

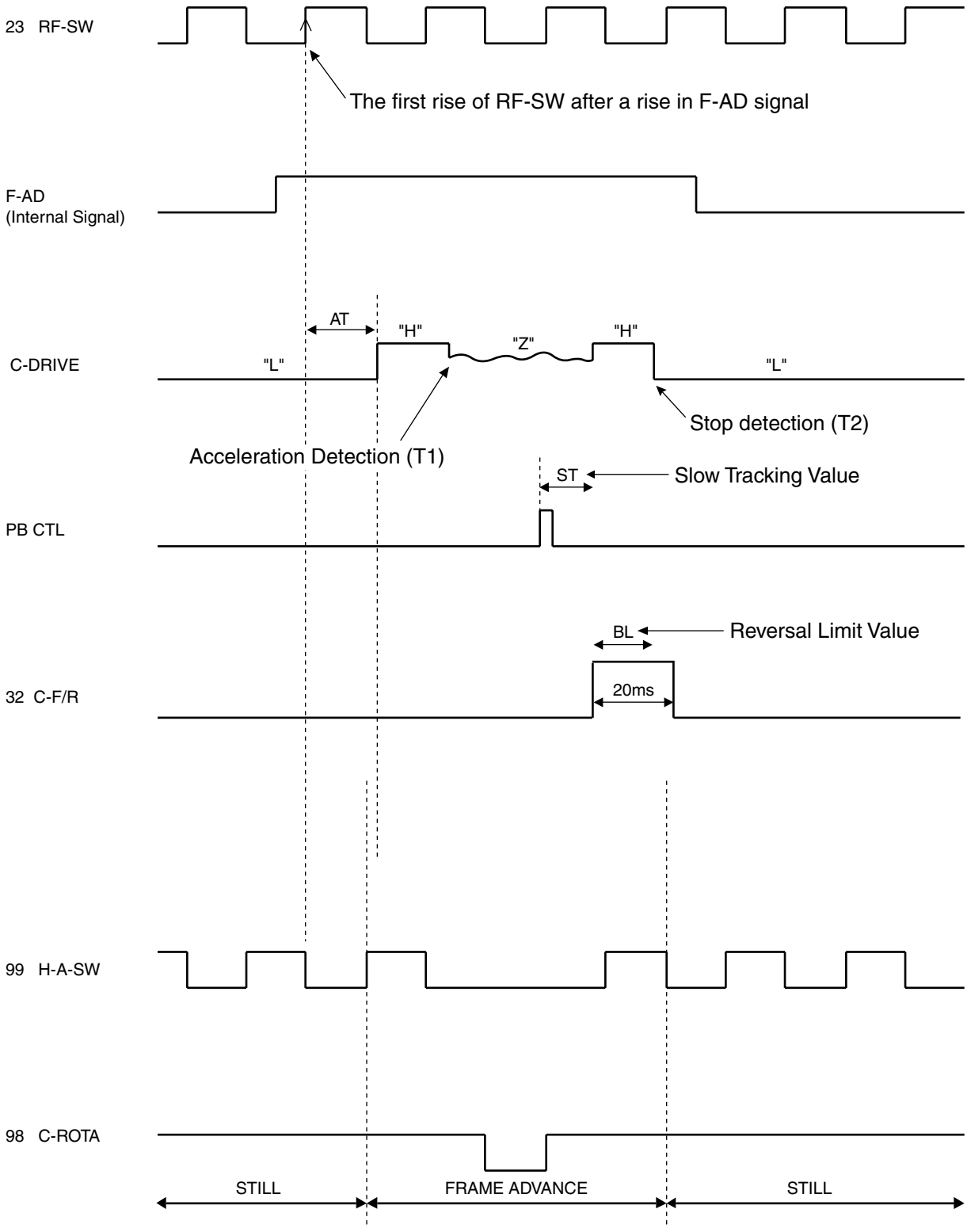



**Fig. 1**

**2) LP/SLP Mode**

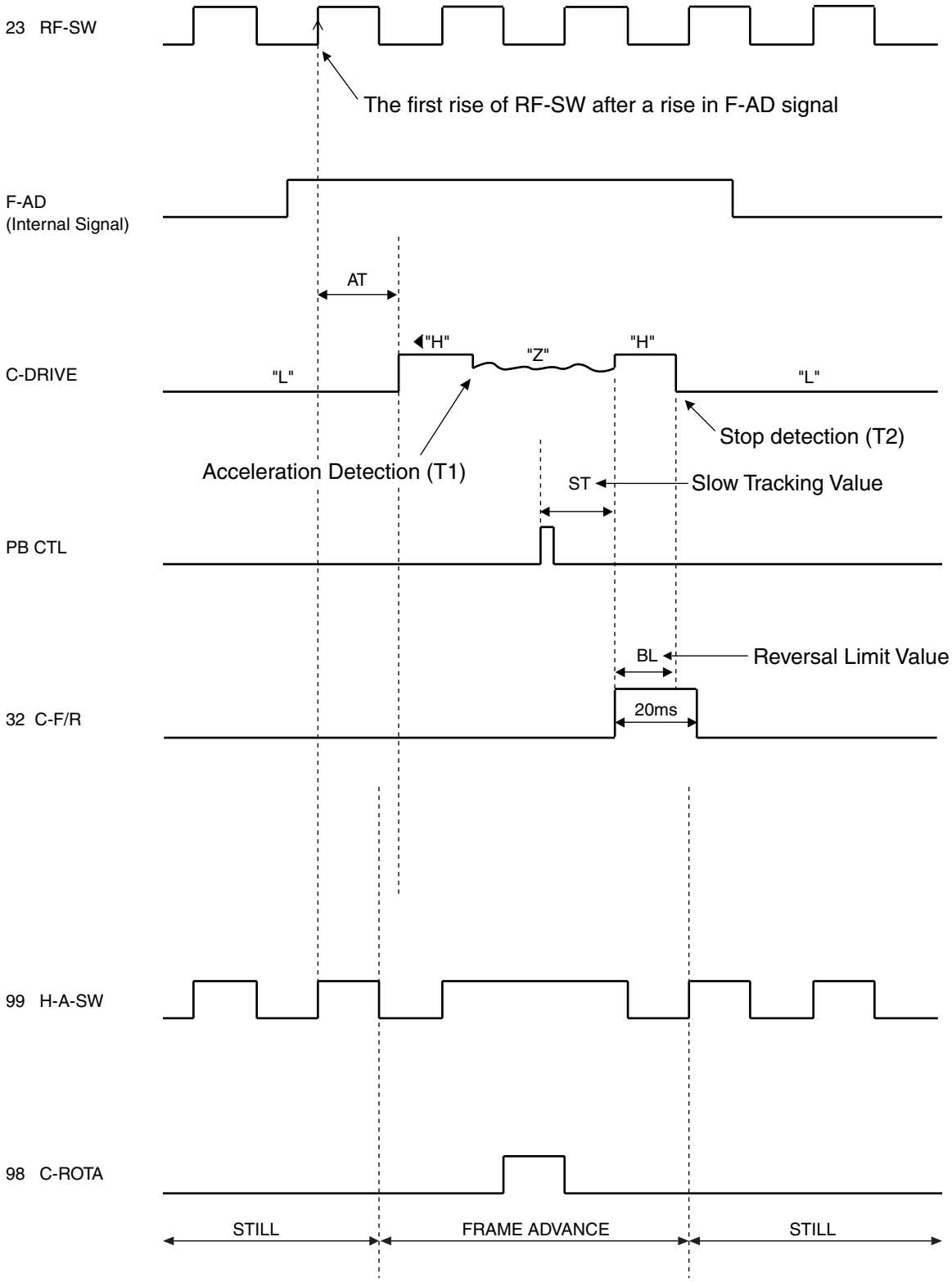



**Fig. 2**

## 1. EJECT (POWER OFF) -> CASSETTE IN (POWER ON) -> STOP(B) -> STOP(A) -> PLAY -> RS -> FS -> PLAY -> STILL -> PLAY -> STOP(A)

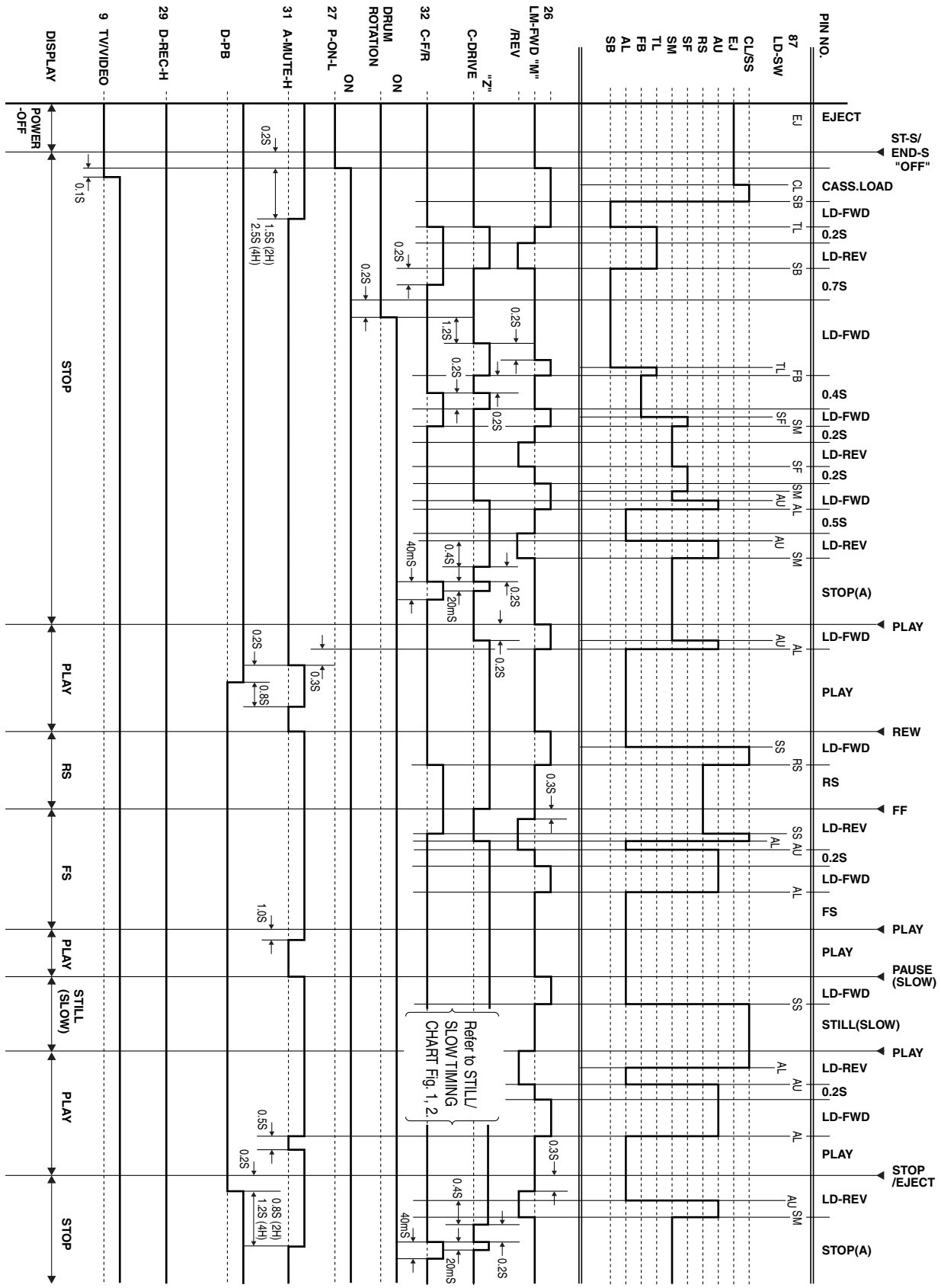



**Fig. 3**

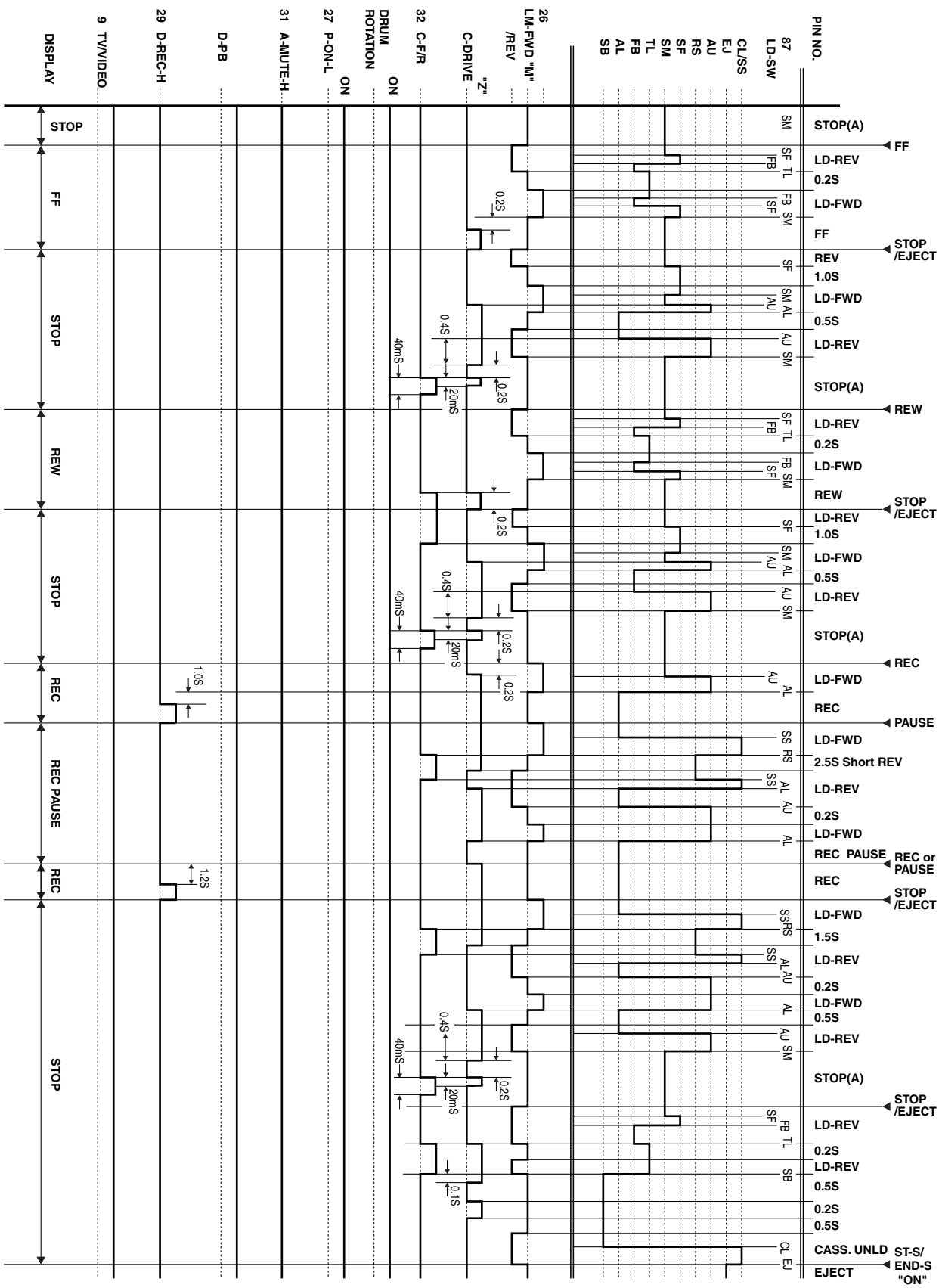
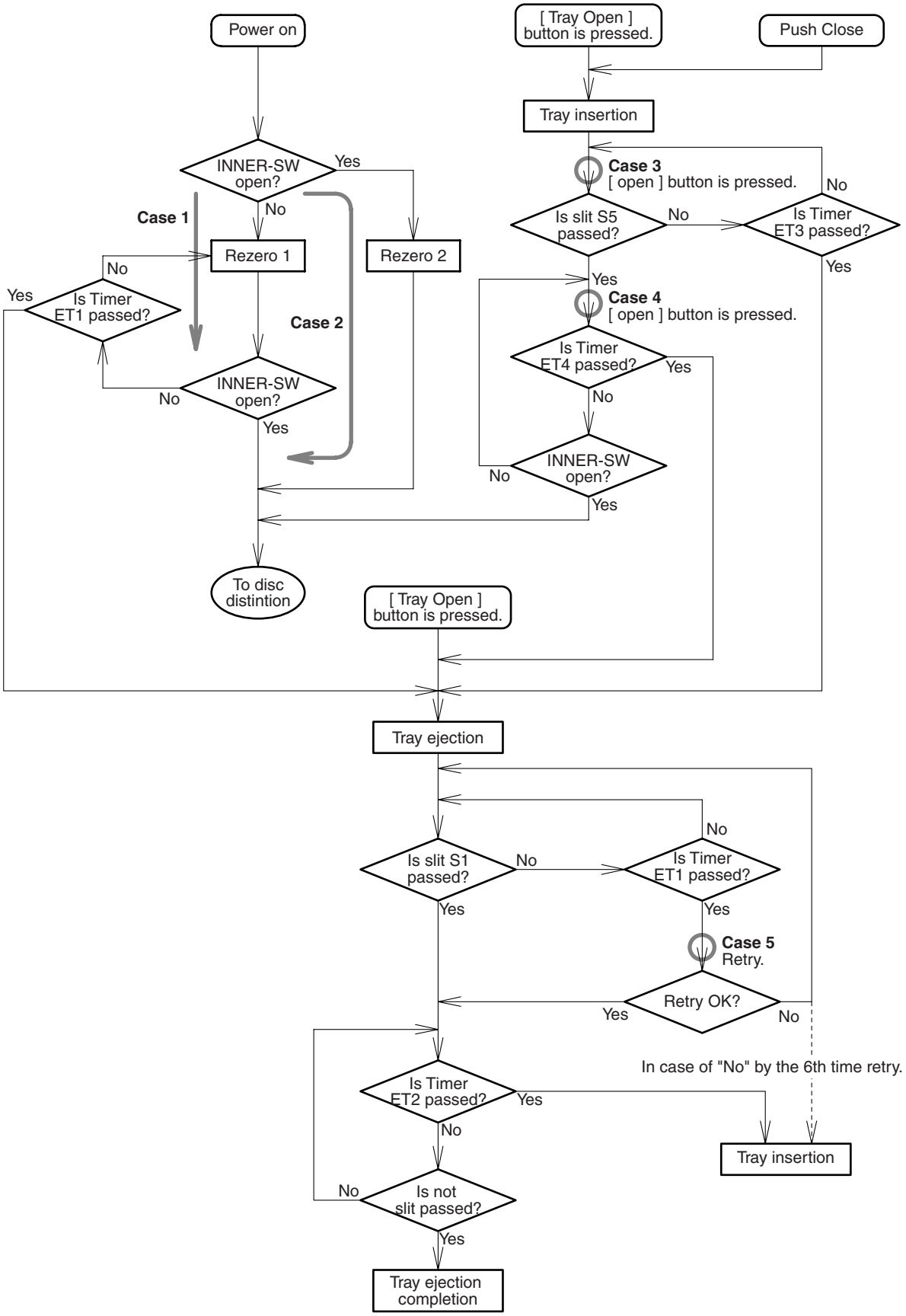

2. STOP(A) -> FF -> STOP(A) -> REW -> STOP(A) -> REC -> PAUSE -> PAUSE or REC -> STOP(A) -> EJECT
PIN NO.
87 LD-SW
CL/SS
EJ
AU
RS
SF
SM
TL
FB
AL
SB
26 LM-FWD "M" /REV
"Z" C-DRIVE
32 C-F/R
DRUM ROTATION
27 P-ON-L
31 A-MUTE-H
29 D-REC-H
D-PB
9 TV/VIDEO
DISPLAY
STOP
FF
STOP
REW
STOP
REC
REC PAUSE
REC
STOP
STOP(A)
FF
LD-REV
0.2S
LD-FWD
FF
STOP /EJECT
REV
1.0S
LD-FWD
0.5S
LD-REV
STOP(A)
REW
LD-REV
0.2S
LD-FWD
REW
STOP /EJECT
LD-REV
1.0S
LD-FWD
0.5S
LD-REV
STOP(A)
REC
LD-FWD
REC
PAUSE
LD-FWD
2.5S Short REV
LD-REV
0.2S
LD-FWD
REC PAUSE
REC or PAUSE
REC
STOP /EJECT
LD-FWD
1.5S
LD-REV
0.2S
LD-FWD
0.5S
LD-REV
STOP(A)
STOP /EJECT
LD-REV
0.2S
LD-REV
0.5S
0.2S
0.5S
CASS. UNLD
EJECT
ST-S/ END-S "ON"
0.2S
0.4S
40mS
20mS
1.0S
1.2S
0.1S

**Fig. 4**

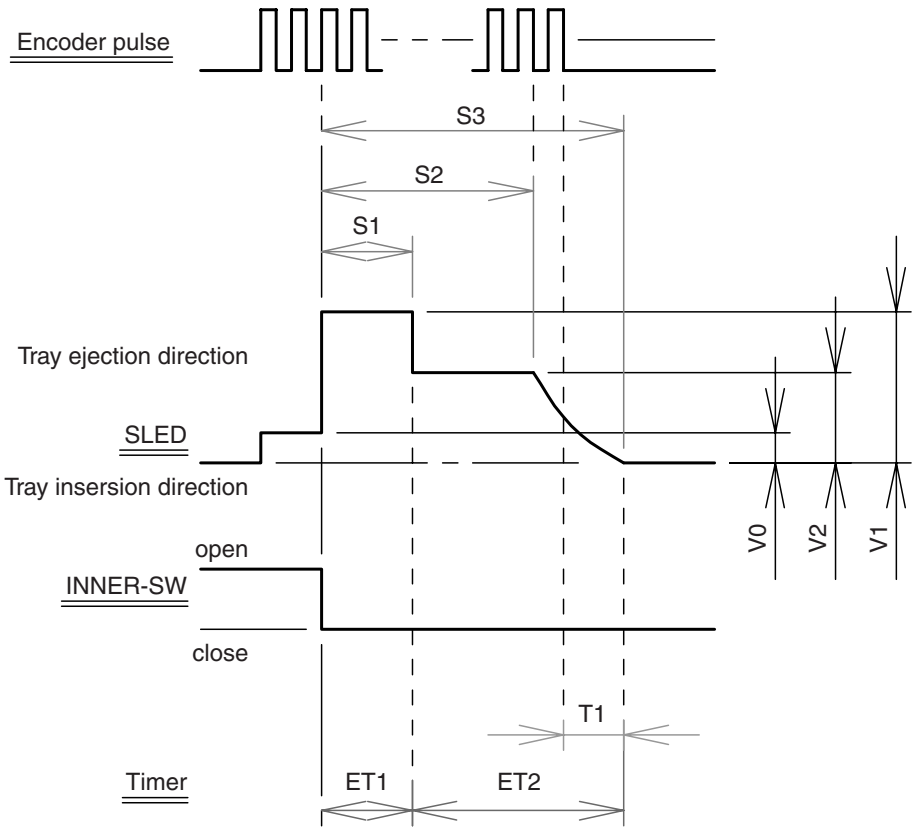
## < DVD Section >


Power on
[ Tray Open ]
button is pressed.
Push Close
Tray insertion
INNER-SW
open?
Yes
No
Case 1
Rezero 1
Rezero 2
No
Yes
Is Timer
ET1 passed?
Case 2
No
INNER-SW
open?
Yes
Case 3
[ open ] button is pressed.
No
Is slit S5
passed?
No
Is Timer
ET3 passed?
Yes
Yes
Case 4
[ open ] button is pressed.
Is Timer
ET4 passed?
Yes
No
No
INNER-SW
open?
Yes
To disc
distintion
[ Tray Open ]
button is pressed.
Tray ejection
No
Is slit S1
passed?
No
Is Timer
ET1 passed?
Yes
Yes
Case 5
Retry.
Retry OK?
Yes
No
In case of "No" by the 6th time retry.
Is Timer
ET2 passed?
Yes
No
Tray insertion
No
Is not
slit passed?
Yes
Tray ejection
completion

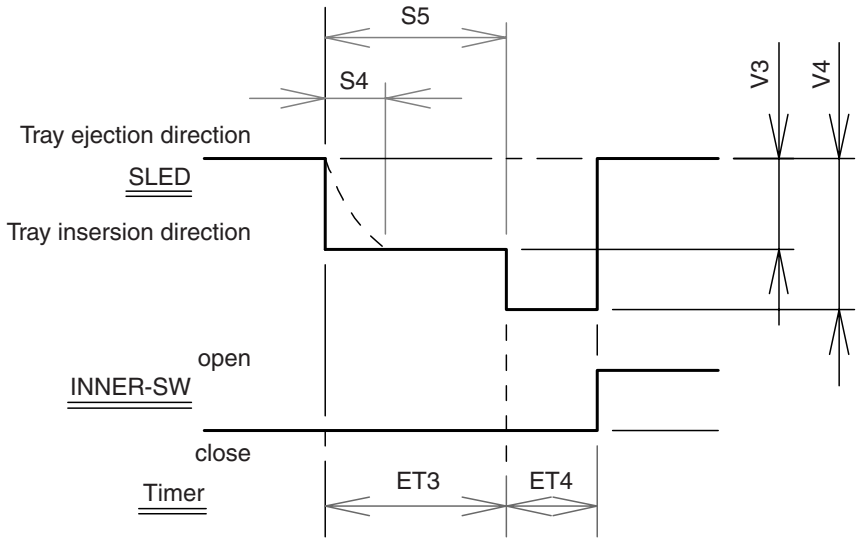
## Parameter

| V*: Voltage (HEX) | S*: Encoder pulse (HEX) | T*: Event timer | ET*: Error detection timer |
|---|---|---|---|
| V0: 2.0 V (00d) | S1: 300 (12c) | T1: 0.1 s | ET1: 5.0 s |
| V1: 4.5 V (022) | S2: 3300 (ce4) | T2: 3.0 s | ET2: 5.0 s |
| V2: 2.2 V (010) | S3: 3935 (f5f) | T3: 3.0 s | ET3: 3.0 s |
| V3: 2.4 V (013) | S4: 0 (000) | T4: 0.1 s | ET4: 3.0 s |
| V4: 6.0 V (030) | S5: 3000 (bb8) | T5: 0.1 s | |

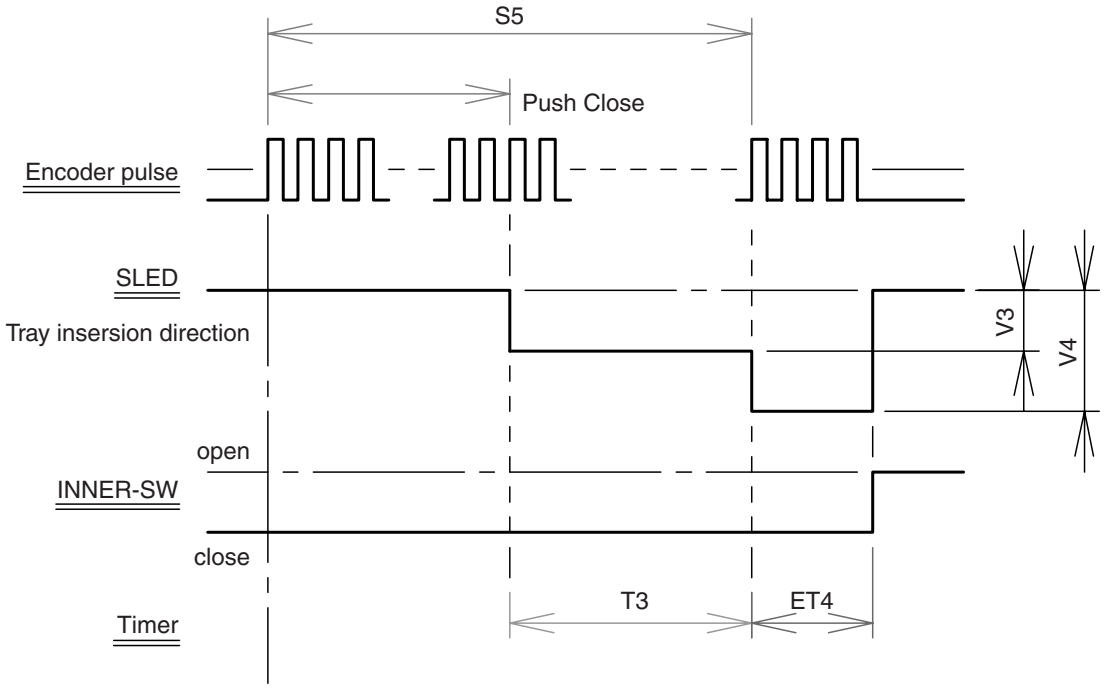
## Tray open



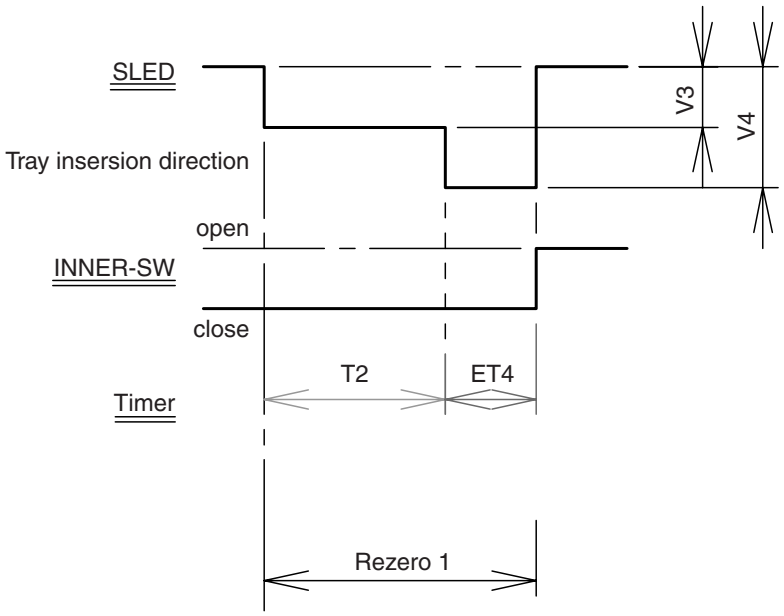
## Tray close



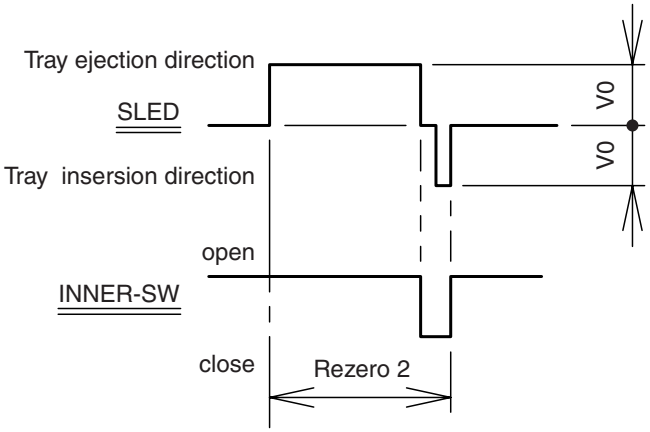

## Push close



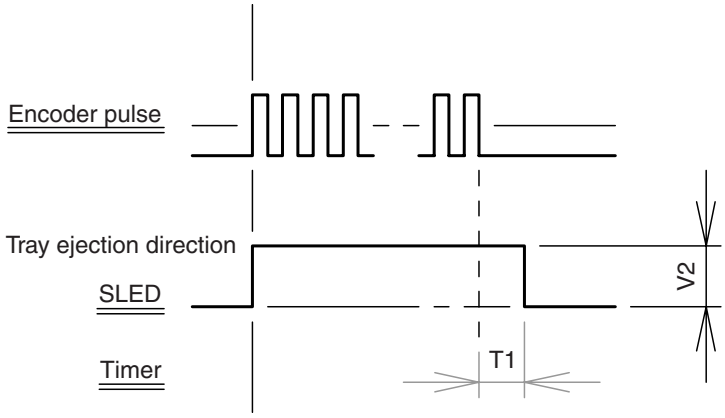
**Case 1**




**Case 2**



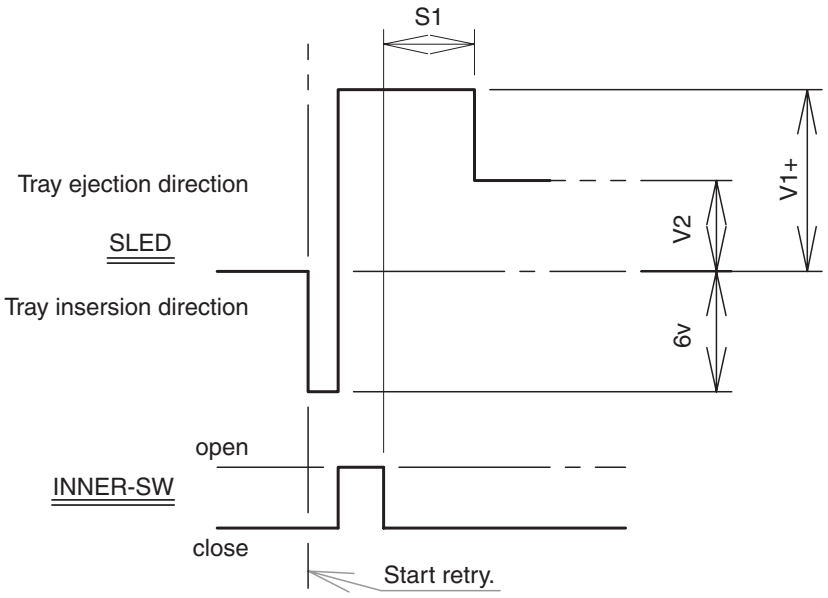

**Case 3 (When [OPEN] button is pressed before the S5 passage.)**




**Case 4 (When [OPEN] button is pressed after the S5 passage.)**

It starts opening after making closing complete once.

## Case 5 (Retry.)




| Retry frequency | V1+ |
|---|---|
| 1st time retry | 6 v |
| 2nd time retry | 7 v |
| 3rd time retry | 8 v |
| 4th time retry | 9 v |
| 5th time retry | 9 v |
| 6th time retry | 9 v |

# IC PIN FUNCTION DESCRIPTIONS

## < VCR Section >

### IC501 (SERVO/SYSTEM CONTROL/OSD)

**"H" ≥ 4.5 V, "L" ≤ 1.0 V**

| Pin No. | IN/ OUT | Signal Name | Function |
|---|---|---|---|
| 1 | IN | P-DOWN -H | Power Voltage Down Detector Signal |
| 2 | IN | READY/ BUSY | Ready/Busy Communication Control with Main Micro Controller |
| 3 | IN | T-REEL | Take Up Reel Rotation Signal |
| 4 | - | NU | Not Used |
| 5 | IN | REMOCON -IN | Remote Control Sensor |
| 6 | OUT | DISPLAY-ENA | FL Display Driver IC Enable Control Output Signal |
| 7 | OUT | DISPLAY-DATA | FL Display Driver IC Data Control Output Signal |
| 8 | OUT | DISPLAY-CLK | FL Display Driver IC Clock Control Output Signal |
| 9 | OUT | TV/VIDEO | RF Conv. ON/OFF Signal |
| 10 | OUT | CONV-SW | RF Conv. Output Channel Switching Signal 3ch="Hi-z", 4ch="L" |
| 11 | OUT | S-CLK | Communication of Clock with VCR Micro Controller |
| 12 | IN | S-DATA-IN | Communication of Data to VCR Micro Controller |
| 13 | OUT | S-DATA-OUT | Communication of Data from VCR Micro Controller |
| 14 | - | NU | Not Used |
| 15 | - | NU | Not Used |
| 16 | - | NU | Not Used |
| 17 | IN/ OUT | IIC-BUS-SDA | IIC BUS Control Data |
| 18 | OUT | IIC-BUS-SCL | IIC BUS Control Clock |
| 19 | OUT | YCA-SCL | YCA IC Control Clock |
| 20 | OUT | YCA-SDA | YCA IC Control Data |
| 21 | OUT | YCA-CS | YCA IC Control Chip Select |
| 22 | IN | REC-SAF-SW | Recording Safety SW Detect (With Record tab = "L"/ With out Record tab = "H") |
| 23 | OUT | RF-SW | Video Head Switching Pulse |
| 24 | OUT | D-V SYNC | Dummy V-sync Output |
| 25 | IN | RESET | System Reset Signal (Reset="L") |
| 26 | OUT | LM-FWD/ REV | Loading Motor FWD/ REV Output |
| 27 | OUT | P-ON-L | Power On Signal to Low |
| 28 | - | NU | Not Used |
| 29 | OUT | D-REC | Delayed Record Signal |
| 30 | OUT | Hi-Fi-H-SW | Hi-Fi Audio Head Switching Pulse |
| 31 | OUT | VCR-AUDIO-MUTE | VCR Audio Mute Control Signal |
| 32 | OUT | C-F/R | Capstan Motor FWD/REV Control Signal (FWD="L"/ REV="H") |
| 33 | OUT | C-CONT | Capstan Motor Control Signal |
| 34 | OUT | D-CONT | Drum Motor Control Signal |
| 35 | - | NU | Not Used |
| 36 | - | VDD | VDD (AL+5V) |
| 37 | OUT | OSCO | Main Clock Output 14.31818MHz |
| 38 | IN | OSCI | Main Clock Input 14.31818MHz |
| 39 | - | VSS | VSS (GND) |
| 40 | IN | XI | Main Clock Input |
| 41 | OUT | XO | Main Clock Output |
| 42 | IN | SXI | Operation Mode Selecting Input Signal |
| 43 | OUT | PWR-SW | DVD Power Supply Control Signal |
| 44 | IN | SYS-RESET | System Reset Signal (Reset="L") |
| 45 | OUT | REG-CONT2 | Power Regulator Control Signal |
| 46 | OUT | REG-CONT1 | Power Regulator Control Signal |
| 47 | OUT | VIDEO-OUT | Composite Video Signal Output |
| 48 | - | Vss | VSS (GND) |
| 49 | IN | VIDEO-IN | Composite Video Signal Input |
| 50 | IN | C-SYNC-IN | Composite Synchronized Pulse |
| 51 | - | VDD2 | VDD2 (AL+5V) |

| Pin No. | IN/ OUT | Signal Name | Function |
|---|---|---|---|
| 52 | IN | AFCC | Low Path Filter Input Signal For AFC |
| 53 | OUT | AFCLPF | Low Path Filter Output Signal For AFC |
| 54 | OUT | VIDEO-MUTE | Video Mute Control Signal |
| 55 | OUT | OUTPUT-SELECT | Output Select (DVD="L"/ VCR="H") |
| 56 | OUT | DVD-AUDIO-MUTE | DVD Audio Mute Control Signal |
| 57 | OUT | VIDEO-SW3 | Video Switching Signal 3 |
| 58 | OUT | VIDEO-SW2 | Video Switching Signal 2 |
| 59 | OUT | VIDEO-SW1 | Video Switching Signal 1 |
| 60 | OUT | AUDIO-SW2 | Audio Switching Signal 2 |
| 61 | OUT | AUDIO-SW1 | Audio Switching Signal 1 |
| 62 | - | NU | Not Used |
| 63 | - | NU | Not Used |
| 64 | - | NU | Not Used |
| 65 | IN | D-PFG | Drum PG/FG Input Signal |
| 66 | - | NU | Not Used |
| 67 | IN | C-FG | Capstan Motor Rotation Detection Pulse |
| 68 | - | AFG | GND |
| 69 | OUT | VRO | Servo Standard Voltage Output |
| 70 | IN | VRI | Servo Standard Voltage Input |
| 71 | - | AVss | AVSS (GND) |
| 72 | IN | CTLA | CTL Amp. AC GND |
| 73 | IN | ADVV | Power Supply |
| 74 | IN/ OUT | CTL (+) | Playback/Record Control Signal (+) |
| 75 | IN/ OUT | CTL (-) | Playback/Record Control Signal (-) |
| 76 | OUT | CTL | Amp. Output Control Signal for Test Point |
| 77 | - | NU | Not Used |
| 78 | IN | Hi-Fi/ NOR-IN | Audio Mode Input HiFi="L"/ Normal="H" |
| 79 | IN | DVD POWER-SAFETY | DVD Power Supply Safety Signal |
| 80 | IN | VCR POWER-SAFETY | VCR Power Supply Safety Signal |
| 81 | IN | END-S | Tape End Position Detect Signal |
| 82 | IN | AFC | Automatic Frequency Control Signal |
| 83 | IN | V-ENV | Video Envelope Comparator Signal |
| 84 | IN | PG-DELAY | Video Head Switching Pulse Signal Adjusted Voltage |
| 85 | IN | KEY-2 | A/D Key Data Signal 2 |
| 86 | IN | KEY-1 | A/D Key Data Signal 1 |
| 87 | IN | LD-SW | Deck Mode Position Detector Signal |
| 88 | IN | ST-S | Tape Start Position Detector Signal |
| 89 | IN | DVD POWER-SAFETY2 | DVD Power Supply Safety Signal |
| 90 | - | NU | Not Used |
| 91 | OUT | FAN-CONT1 | Fan Motor Control Signal |
| 92 | OUT | POWER-LED | Power LED Signal Output |
| 93 | OUT | POWER-LED | Power LED Signal Output |
| 94 | OUT | VCR-LED | VCR Mode LED Signal Output |
| 95 | OUT | VCR-LED | VCR Mode LED Signal Output |
| 96 | OUT | DVD-LED | DVD Mode LED Signal Output |
| 97 | OUT | DVD-LED | DVD Mode LED Signal Output |
| 98 | OUT | C-ROTA | Color Phase Rotary Changeover Signal |
| 99 | OUT | H-A-SW | Video Head Amp Switching Pulse |
| 100 | IN | H-A-COMP | Head Amp Comparator Signal |

**Notes:**

Abbreviation for Active Level:

PWM ----- Pulse Wide Modulation

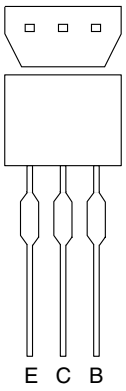
A/D -------- Analog - Digital Converter

## < DVD Section >

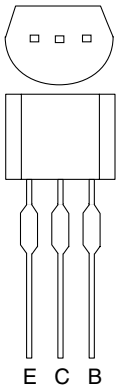
### IC571 (FIP DRIVER IC)

| Pin No. | IN/ OUT | Signal Name | Function |
|---|---|---|---|
| 1 | IN | CLK | Clock Input |
| 2 | IN | STB | Serial Interface Strobe |
| 3 | - | NU | Not Used |
| 4 | - | NU | Not Used |
| 5 | - | VSS | GND |
| 6 | - | VDD | Power Supply |
| 7 | OUT | a | Segment Output |
| 8 | | b | |
| 9 | | c | |
| 10 | | d | |
| 11 | | e | |
| 12 | | f | |
| 13 | | g | |
| 14 | | h | |
| 15 | - | VEE | Pull Down Level |
| 16 | OUT | i | Segment Output |
| 17 | OUT | 7G | Grid Output |
| 18 | | 6G | |
| 19 | | 5G | |
| 20 | | 4G | |
| 21 | | 3G | |
| 22 | | 2G | |
| 23 | | 1G | |
| 24 | - | VDD | Power Supply |
| 25 | - | VSS | GND |
| 26 | IN | OSC | Oscillator Input |
| 27 | - | NU | Not Used |
| 28 | IN | DIN | Serial Data Input |

# LEAD IDENTIFICATIONS

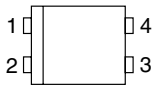



KRA103M-AT/P
KRC103M-AT/P
KTA1267Y-AT/P
KTC3193-Y-AT/P
KTC3199-(BL,Y)-AT/P
KTA1266-Y-AT/P



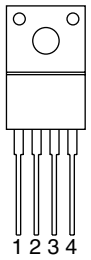

KTC3198-Y-AT/P
KTC3203-Y-AT/P
2SC3266-GR(TPE2 F)

PS2561A-1(W)

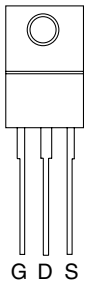



1: Anode
2: Cathode
3: Emitter
4: Collector

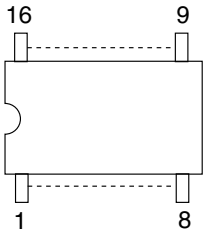
PQ070XF01SZH



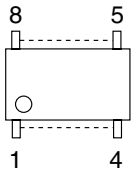

2SK3563



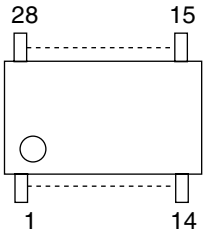

CD4052BNSR
CD4053BNSR



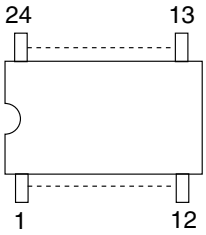

MM1636XWRE



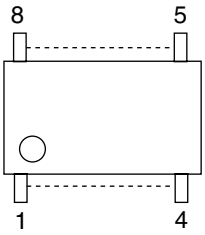

PT6313-S-TP(L)



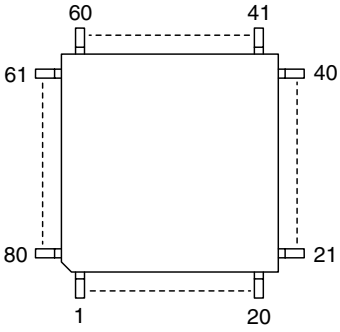

MM1697AJBE



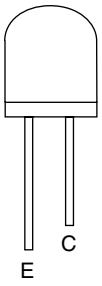

KIA4558P/P
RC4580IP



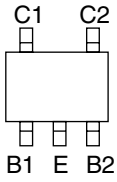

LA72670BM-MPB-E



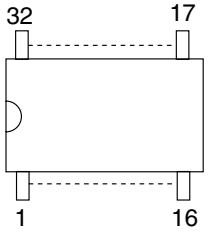

PT204-6B-12



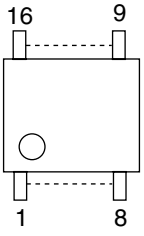

RN1511(TE85R.F)



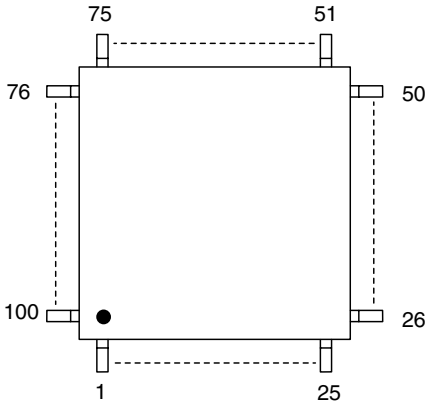

AN5832SA-E1V



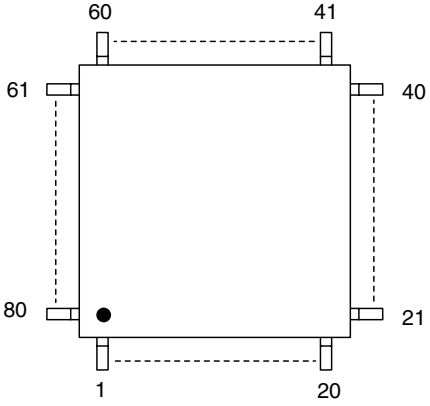

MM1637XVBE




MN101D10FYD



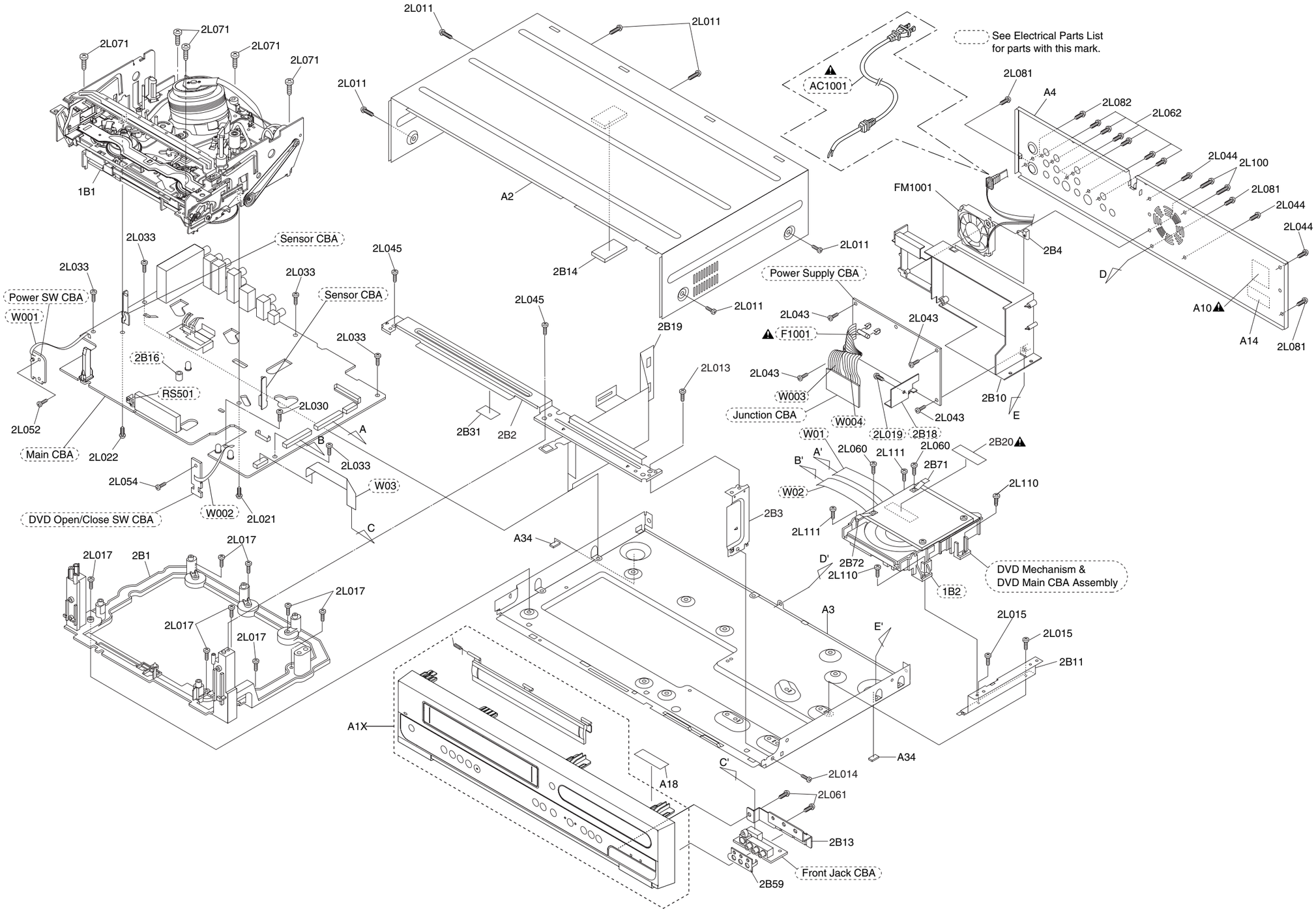

LA71205M-MPB-E



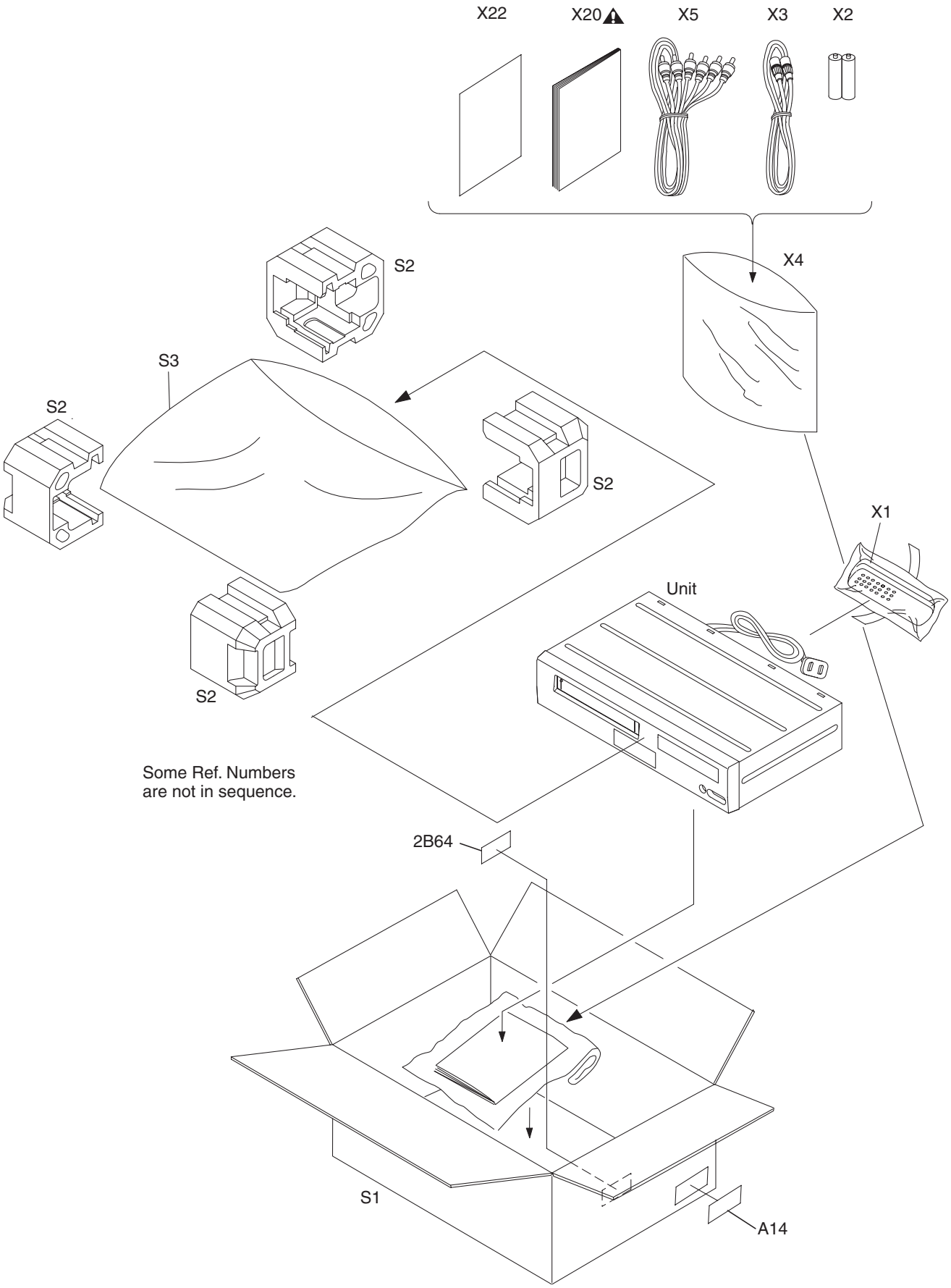

Note:
A: Anode
K: Cathode
E: Emitter
C: Collector
B: Base
R: Reference
S: Source
G: Gate
D: Drain

# EXPLODED VIEWS

## Cabinet



# Packing


X22
X20
X5
X3
X2
X4
S2
S3
S2
S2
S2
X1
Unit
Some Ref. Numbers
are not in sequence.
2B64
S1
A14

# MECHANICAL PARTS LIST

**PRODUCT SAFETY NOTE:** Products marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully the product safety notice in this service manual. Don't degrade the safety of the product through improper servicing.

**NOTE:** Parts that are not assigned part numbers (---------) are not available.

| Ref. No. | Description | Part No. |
|---|---|---|
| A1X | FRONT ASSEMBLY E9A82CD | 1VM222257 |
| A2 | TOP COVER E9400UD | 0VM101356D |
| A3 | MAIN CHASSIS E9400UD | 0VM101353E |
| A4 | REAR PANEL E9A82CD | 1VM222256 |
| A10⚠ | RATING LABEL(U) E9A82CD | ---------- |
| A14 | LABEL BAR CODE HB400UD | ---------- |
| A18 | LABEL TELEPHONE NO.(SYMPHONIC) E9411UD | ---------- |
| A34 | FOOT H5100UD | 0VM406940 |
| 1B1 | DECK ASSEMBLY CZD014/VM2460 | N2460FL |
| 2B1 | DECK PEDESTAL E9600UD | 1VM120055B |
| 2B2 | FRONT BRACKET E9400UD | 0VM204534C |
| 2B3 | FRONT BRACKET R E9400UD | 0VM416269A |
| 2B4 | EARTH PLATE E9600UD | 1VM421163 |
| 2B10 | HOLDER PCB E9400UD | 0VM101354C |
| 2B11 | BRACKET R E9600UD | 1VM421062C |
| 2B13 | JACK BRACKET E9400UD | 0VM416273 |
| 2B14 | CUSHION RUBBER E9400UD | 0VM416664 |
| 2B19 | RADIATION SHEET E9610UD | 1VM320666 |
| 2B20⚠ | CAUTION LABEL | 0VM416472 |
| 2B31 | TAPE HIMELON H9206JD | 0VM413956 |
| 2B59 | JACK EARTH PLATE E9A80UD | 1VM322618 |
| 2B64 | LABEL EAS L0951UB | ---------- |
| 2B71 | MECHA EARTH PLATE R E9A80UD | 1VM424038 |
| 2B72 | MECHA EARTH PLATE F E9A80UD | 1VM424039 |
| FM1001 | DC FAN MOTOR D06K-12TS7 01(AX) | MMEZR12NH003 |
| 2L011 | SCREW C-TIGHT M3X5 BIND HEAD + | GBCC3050 |
| 2L013 | SCREW S-TIGHT M3X6 BIND HEAD+ | GBJS3060 |
| 2L014 | SCREW S-TIGHT M3X6 BIND HEAD+ | GBJS3060 |
| 2L015 | SCREW M3X5 HEAD+ BIND S-TIGHT | GBJS3050 |
| 2L017 | SCREW S-TIGHT M3X8 BIND HEAD+ | GBJS3080 |
| 2L021 | SCREW P-TIGHT M3X8 BIND HEAD+ | GBCP3080 |
| 2L022 | SCREW S-TIGHT M3X6 BIND HEAD+ | GBJS3060 |
| 2L030 | SCREW P-TIGHT M3X8 BIND HEAD+ | GBJP3080 |
| 2L033 | SCREW S-TIGHT M3X6 BIND HEAD+ | GBJS3060 |
| 2L043 | SCREW P-TIGHT M3X8 BIND HEAD+ | GBJP3080 |
| 2L044 | SCREW P-TIGHT M3X8 BIND HEAD+ | GBJP3080 |
| 2L045 | SCREW P-TIGHT M3X8 BIND HEAD+ | GBJP3080 |
| 2L052 | SCREW P-TIGHT M3X6 BIND HEAD+ | GBJP3060 |
| 2L054 | SCREW P-TIGHT M3X6 BIND HEAD+ | GBJP3060 |
| 2L060 | SCREW P-TIGHT M3X8 BIND HEAD+ | GBJP3080 |
| 2L061 | SCREW P-TIGHT M3X6 BIND HEAD+ | GBJP3060 |
| 2L062 | SCREW B-TIGHT M3X8 BIND HEAD+ | GBHB3080 |
| 2L071 | SCREW P-TIGHT M3*10 WASHERHEAD+ | GCJP3100 |
| 2L081 | SCREW S-TIGHT M3*5 BIND+ 3*5 BIND+ | GBHS3050 |
| 2L082 | SCREW S-TIGHT M3*5 BIND+ 3*5 BIND+ | GBHS3050 |
| 2L100 | P-TIGHT SCREW M3X34 E9400UD | 1VM420034A |
| 2L110 | SCREW S-TIGHT M3X10 BIND HEAD+ | GBJS3100 |
| 2L111 | SCREW P-TIGHT M3*12 BIND+ | GBJP3120 |

| Ref. No. | Description | Part No. |
|---|---|---|
| | **PACKING** | |
| S1 | GIFT BOX CARTON E9A82CD | 1VM322660 |
| S2 | STYROFOAM E9400UD | 0VM101363B |
| S3 | SET BAG E7708UA | 0DM400731D |
| | **ACCESSORIES** | |
| X1 | REMOTE CONTROL UNIT NB550UD | NB550UD |
| X2 | DRY BATTERY R03/2S | XB0M451T0006 |
| X3 | RF CABLE 2.5C-2V | WPZ0901TM002 |
| X4 | ACCESSORY BAG E5700UD | 0VM415576 |
| X5 | AV CORD WPZ0102TM015 | WPZ0102TM015 |
| X20⚠ | OWNERS MANUAL E9A82CD | 1VMN22458 |
| X22 | QUICK GUIDE E9A82CD | 1VMN22459 |

# ELECTRICAL PARTS LIST

**PRODUCT SAFETY NOTE:** Products marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully the product safety notice in this service manual. Don't degrade the safety of the product through improper servicing.

**NOTES:**

1. Parts that are not assigned part numbers (---------) are not available.
2. Tolerance of Capacitors and Resistors are noted with the following symbols.

C.....±0.25% D.....±0.5% F.....±1%

G.....±2% J.....±5% K.....±10%

M.....±20% N.....±30% Z.....+80/-20%

## DVD MECHANISM & DVD MAIN CBA ASSEMBLY

| Ref. No. | Description | Part No. |
|---|---|---|
| | DVD MECHANISM & DVD MAIN CBA ASSEMBLY | N78FBCUN |

## MCV CBA

| Ref. No. | Description | Part No. |
|---|---|---|
| | MCV CBA<br>Consists of the following: | 1VSA14014 |
| | MAIN CBA (MCV-A )<br>POWER SW CBA (MCV-B)<br>DVD OPEN/CLOSE SW CBA (MCV-C)<br>FRONT JACK CBA (MCV-D)<br>SENSOR CBA | ----------<br>----------<br>----------<br>----------<br>1VSA13725 |

### MAIN CBA

| Ref. No. | Description | Part No. |
|---|---|---|
| | MAIN CBA (MCV-A )<br>Consists of the following: | ---------- |
| | **CAPACITORS** | |
| C051 | ELECTROLYTIC CAP. 10µF/16V M H7 | CE1CMASSL100 |
| C055 | ELECTROLYTIC CAP. 47µF/16V M | CE1CMASDL470 |
| C056 | ELECTROLYTIC CAP. 22µF/16V M | CE1CMASDL220 |
| C103 | ELECTROLYTIC CAP. 47µF/16V M | CE1CMASDL470 |
| C213 | CHIP CERAMIC CAP.(1608) B K 0.1µF/50V | CHD1JK30B104 |
| C214 | ELECTROLYTIC CAP. 100µF/6.3V M | CE0KMASDL101 |
| C215 | CHIP CERAMIC CAP.(1608) B K 0.1µF/50V | CHD1JK30B104 |
| C222 | CHIP CERAMIC CAP.(1608) B K 0.1µF/50V | CHD1JK30B104 |
| C223 | ELECTROLYTIC CAP. 100µF/6.3V M H7 | CE0KMASSL101 |
| C224 | CHIP CERAMIC CAP.(1608) F Z 0.1µF/50V | CHD1JZ30F104 |
| C227 | ELECTROLYTIC CAP. 100µF/6.3V M H7 | CE0KMASSL101 |
| C228 | CHIP CERAMIC CAP.(1608) F Z 0.1µF/50V | CHD1JZ30F104 |
| C301 | ELECTROLYTIC CAP. 1µF/50V M H7 | CE1JMAVSL1R0 |
| C302 | CHIP CERAMIC CAP.(1608) CH J 390pF/50V | CHD1JJ3CH391 |
| C303 | PCB JUMPER D0.6-P5.0 | JW5.0T |
| C304 | CHIP CERAMIC CAP.(1608) CH J 100pF/50V | CHD1JJ3CH101 |
| C305 | CHIP CERAMIC CAP.(1608) CH J 100pF/50V | CHD1JJ3CH101 |
| C307 | CHIP CERAMIC CAP.(1608) B K 1µF/10V | CHD1AK30B105 |
| C308 | ELECTROLYTIC CAP. 47µF/6.3V M H7 | CE0KMAVSL470 |
| C309 | CHIP CERAMIC CAP.(1608) F Z 0.1µF/50V | CHD1JZ30F104 |
| C310 | ELECTROLYTIC CAP. 22µF/6.3V M H7 | CE0KMAVSL220 |
| C311 | ELECTROLYTIC CAP. 1µF/50V M H7 | CE1JMAVSL1R0 |
| C312 | CHIP CERAMIC CAP.(1608) B K 1µF/10V | CHD1AK30B105 |
| C313 | ELECTROLYTIC CAP. 1µF/50V M H7 | CE1JMAVSL1R0 |
| C314 | CHIP CERAMIC CAP.(1608) B K 1µF/10V | CHD1AK30B105 |
| C315 | CHIP CERAMIC CAP.(1608) B K 1µF/10V | CHD1AK30B105 |
| C316 | CHIP CERAMIC CAP.(1608) B K 1µF/10V | CHD1AK30B105 |
| C317 | CHIP CERAMIC CAP.(1608) B K 1µF/10V | CHD1AK30B105 |
| C318 | ELECTROLYTIC CAP. 22µF/6.3V M H7 | CE0KMAVSL220 |
| C319 | CHIP CERAMIC CAP.(1608) B K 0.01µF/50V | CHD1JK30B103 |
| C320 | CERAMIC CAP.(AX) Y M 0.01µF/16V | CCA1CMT0Y103 |
| C321 | CHIP CERAMIC CAP.(1608) B K 0.01µF/50V | CHD1JK30B103 |
| C324 | CHIP CERAMIC CAP.(1608) B K 0.01µF/50V | CHD1JK30B103 |
| C327 | ELECTROLYTIC CAP. 47µF/6.3V M H7 | CE0KMAVSL470 |
| C328 | ELECTROLYTIC CAP. 1µF/50V M H7 | CE1JMAVSL1R0 |
| C329 | CHIP CERAMIC CAP.(1608) B K 0.01µF/50V | CHD1JK30B103 |
| C330 | ELECTROLYTIC CAP. 1µF/50V M H7 | CE1JMAVSL1R0 |
| C331 | CHIP CERAMIC CAP.(1608) B K 0.01µF/50V | CHD1JK30B103 |
| C332 | ELECTROLYTIC CAP. 1µF/50V M H7 | CE1JMAVSL1R0 |
| C333 | CHIP CERAMIC CAP.(1608) F Z 0.1µF/50V | CHD1JZ30F104 |
| C336 | CHIP CERAMIC CAP.(1608) B K 0.01µF/50V | CHD1JK30B103 |
| C339 | CHIP CERAMIC CAP.(1608) B K 0.047µF/50V | CHD1JK30B473 |
| C340 | CHIP CERAMIC CAP.(1608) B K 0.1µF/50V | CHD1JK30B104 |
| C341 | CHIP CERAMIC CAP.(1608) B K 0.047µF/50V | CHD1JK30B473 |
| C342 | CHIP CERAMIC CAP.(1608) F Z 0.1µF/50V | CHD1JZ30F104 |
| C343 | ELECTROLYTIC CAP. 47µF/6.3V M H7 | CE0KMAVSL470 |
| C346 | CHIP CERAMIC CAP.(1608) B K 0.01µF/50V | CHD1JK30B103 |
| C391 | ELECTROLYTIC CAP. 100µF/10V M | CE1AMASDL101 |
| C392 | ELECTROLYTIC CAP. 470µF/6.3V M | CE0KMASDL471 |
| C401 | CHIP CERAMIC CAP.(1608) F Z 0.1µF/50V | CHD1JZ30F104 |
| C404 | CHIP CERAMIC CAP.(1608) B K 0.01µF/50V | CHD1JK30B103 |
| C405 | ELECTROLYTIC CAP. 22µF/6.3V M H7 | CE0KMAVSL220 |
| C406 | ELECTROLYTIC CAP. 33µF/6.3V M H7 | CE0KMAVSL330 |
| C407 | CHIP CERAMIC CAP.(1608) B K 0.01µF/50V | CHD1JK30B103 |
| C408 | CHIP CERAMIC CAP.(1608) B K 0.012µF/50V | CHD1JK30B123 |
| C409 | ELECTROLYTIC CAP. 10µF/16V M H7 | CE1CMAVSL100 |
| C410 | CHIP CERAMIC CAP.(1608) B K 2700pF/50V | CHD1JK30B272 |
| C411 | CHIP CERAMIC CAP.(1608) B K 1000pF/50V | CHD1JK30B102 |
| C412 | ELECTROLYTIC CAP. 4.7µF/25V M H7 | CE1EMAVSL4R7 |
| C413 | CHIP CERAMIC CAP.(1608) B K 6800pF/50V | CHD1JK30B682 |
| C422 | ELECTROLYTIC CAP. 47µF/6.3V M H7 | CE0KMAVSL470 |
| C423 | ELECTROLYTIC CAP. 220µF/6.3V M H7 | CE0KMAVSL221 |
| C424 | CERAMIC CAP. B K 470pF/500V | CCD2JKS0B471 |
| C425 | FILM CAP.(P) 0.018µF/100V J | CMA2AJS00183 |
| C440 | ELECTROLYTIC CAP. 0.1µF/50V M H7 | CE1JMAVSLR10 |
| C441 | ELECTROLYTIC CAP. 0.1µF/50V M H7 | CE1JMAVSLR10 |
| C448 | ELECTROLYTIC CAP. 4.7µF/50V M H7 | CE1JMAVSL4R7 |
| C449 | ELECTROLYTIC CAP. 4.7µF/50V M H7 | CE1JMAVSL4R7 |
| C451 | ELECTROLYTIC CAP. 47µF/16V M H7 | CE1CMAVSL470 |
| C452 | ELECTROLYTIC CAP. 0.1µF/50V M H7 | CE1JMAVSLR10 |
| C453 | ELECTROLYTIC CAP. 10µF/16V M H7 | CE1CMAVSL100 |
| C454 | ELECTROLYTIC CAP. 1µF/50V M H7 | CE1JMAVSL1R0 |
| C455 | ELECTROLYTIC CAP. 22µF/6.3V M H7 | CE0KMAVSL220 |
| C456 | ELECTROLYTIC CAP. 10µF/16V M H7 | CE1CMAVSL100 |
| C457 | ELECTROLYTIC CAP. 4.7µF/25V M H7 | CE1EMAVSL4R7 |
| C458 | CHIP CERAMIC CAP.(1608) B K 0.01µF/50V | CHD1JK30B103 |
| C459 | ELECTROLYTIC CAP. 22µF/6.3V M H7 | CE0KMAVSL220 |
| C460 | CHIP CERAMIC CAP.(1608) B K 4700pF/50V | CHD1JK30B472 |

| Ref. No. | Description | Part No. |
|---|---|---|
| C461 | CHIP CERAMIC CAP.(1608) B K 0.01μF/50V | CHD1JK30B103 |
| C462 | CHIP CERAMIC CAP.(1608) B K 0.01μF/50V | CHD1JK30B103 |
| C465 | ELECTROLYTIC CAP. 4.7μF/25V M H7 | CE1EMAVSL4R7 |
| C466 | ELECTROLYTIC CAP. 220μF/6.3V M H7 | CE0KMAVSL221 |
| C467 | CHIP CERAMIC CAP.(1608) B K 0.022μF/50V | CHD1JK30B223 |
| C470 | CHIP CERAMIC CAP.(1608) B K 0.1μF/50V | CHD1JK30B104 |
| C471 | ELECTROLYTIC CAP. 22μF/6.3V M H7 | CE0KMAVSL220 |
| C472 | CHIP CERAMIC CAP.(1608) B K 4700pF/50V | CHD1JK30B472 |
| C473 | CHIP CERAMIC CAP.(1608) B K 0.01μF/50V | CHD1JK30B103 |
| C474 | ELECTROLYTIC CAP. 4.7μF/25V M H7 | CE1EMAVSL4R7 |
| C475 | ELECTROLYTIC CAP. 10μF/16V M H7 | CE1CMAVSL100 |
| C476 | ELECTROLYTIC CAP. 1μF/50V M H7 | CE1JMAVSL1R0 |
| C483 | CHIP CERAMIC CAP.(1608) F Z 0.1μF/50V | CHD1JZ30F104 |
| C485 | ELECTROLYTIC CAP. 4.7μF/25V M H7 | CE1EMAVSL4R7 |
| C502 | ELECTROLYTIC CAP. 220μF/6.3V M | CE0KMASDL221 |
| C505 | ELECTROLYTIC CAP. 22μF/10V M H7 | CE1AMAVSL220 |
| C507 | ELECTROLYTIC CAP. 1μF/50V M H7 | CE1JMAVSL1R0 |
| C508 | CHIP CERAMIC CAP.(1608) B K 0.022μF/50V | CHD1JK30B223 |
| C509 | ELECTROLYTIC CAP. 220μF/6.3V M H7 | CE0KMAVSL221 |
| C513 | CHIP CERAMIC CAP.(1608) CH D 10pF/50V | CHD1JD3CH100 |
| C514 | CHIP CERAMIC CAP. CH J 27pF/50V | CHD1JJ3CH270 |
| C515 | CHIP CERAMIC CAP.(1608) CH J 22pF/50V | CHD1JJ3CH220 |
| C521 | ELECTROLYTIC CAP. 47μF/25V M | CE1EMASDL470 |
| C522 | CHIP CERAMIC CAP.(1608) B K 4700pF/50V | CHD1JK30B472 |
| C523 | CHIP CERAMIC CAP.(1608) CH J 100pF/50V | CHD1JJ3CH101 |
| C525 | CHIP CERAMIC CAP.(1608) B K 4700pF/50V | CHD1JK30B472 |
| C527 | CHIP CERAMIC CAP.(1608) B K 0.047μF/50V | CHD1JK30B473 |
| C529 | CHIP CERAMIC CAP.(1608) B K 0.022μF/50V | CHD1JK30B223 |
| C530 | ELECTROLYTIC CAP. 1μF/50V M H7 | CE1JMAVSL1R0 |
| C531 | ELECTROLYTIC CAP. 10μF/16V M H7 | CE1CMAVSL100 |
| C532 | ELECTROLYTIC CAP. 10μF/16V M H7 | CE1CMAVSL100 |
| C533 | ELECTROLYTIC CAP. 47μF/6.3V M H7 | CE0KMAVSL470 |
| C534 | CHIP CERAMIC CAP.(1608) B K 0.1μF/50V | CHD1JK30B104 |
| C535 | ELECTROLYTIC CAP. 22μF/10V M H7 | CE1AMAVSL220 |
| C536 | CHIP CERAMIC CAP.(1608) B K 1000pF/50V | CHD1JK30B102 |
| C537 | CHIP CERAMIC CAP.(1608) B K 1000pF/50V | CHD1JK30B102 |
| C540 | CHIP CERAMIC CAP.(1608) B K 0.01μF/50V | CHD1JK30B103 |
| C544 | ELECTROLYTIC CAP. 220μF/6.3V M | CE0KMASDL221 |
| C545 | ELECTROLYTIC CAP. 100μF/16V M H7 | CE1CMAVSL101 |
| C550 | ELECTROLYTIC CAP. 22μF/50V M H7 | CE1JMASSL220 |
| C585 | CHIP CERAMIC CAP.(1608) B K 0.1μF/50V | CHD1JK30B104 |
| C586 | ELECTROLYTIC CAP. 100μF/6.3V M H7 | CE0KMASSL101 |
| C587 | CHIP CERAMIC CAP.(1608) B K 4700pF/50V | CHD1JK30B472 |
| C588 | ELECTROLYTIC CAP. 100μF/6.3V H7 | CE0KMAVSL101 |
| C706 | CHIP CERAMIC CAP.(1608) B K 0.01μF/50V | CHD1JK30B103 |
| C751 | CHIP CERAMIC CAP.(1608) B K 1000pF/50V | CHD1JK30B102 |
| C752 | CHIP CERAMIC CAP.(1608) B K 1000pF/50V | CHD1JK30B102 |
| C762 | ELECTROLYTIC CAP. 4.7μF/50V M H7 | CE1JMAVSL4R7 |
| C766 | CHIP CERAMIC CAP.(1608) B K 0.01μF/50V | CHD1JK30B103 |
| C777 | ELECTROLYTIC CAP. 4.7μF/50V M H7 | CE1JMAVSL4R7 |
| C814 | ELECTROLYTIC CAP. 2.2μF/50V M | CE1JMASDL2R2 |
| C818 | CHIP CERAMIC CAP.(1608) B K 0.01μF/50V | CHD1JK30B103 |
| C819 | CHIP CERAMIC CAP.(1608) B K 0.1μF/50V | CHD1JK30B104 |
| C820 | ELECTROLYTIC CAP. 2.2μF/50V M | CE1JMASDL2R2 |
| C821 | ELECTROLYTIC CAP. 22μF/16V M | CE1CMASDL220 |
| C822 | CHIP CERAMIC CAP.(1608) B K 0.1μF/50V | CHD1JK30B104 |
| C823 | ELECTROLYTIC CAP. 2.2μF/50V M | CE1JMASDL2R2 |
| C825 | ELECTROLYTIC CAP. 2.2μF/50V M | CE1JMASDL2R2 |
| C826 | ELECTROLYTIC CAP. 2.2μF/50V M | CE1JMASDL2R2 |
| C827 | CHIP CERAMIC CAP.(1608) B K 0.1μF/50V | CHD1JK30B104 |
| C828 | ELECTROLYTIC CAP. 100μF/6.3V M | CE0KMASDL101 |
| C829 | CHIP CERAMIC CAP.(1608) B K 0.1μF/50V | CHD1JK30B104 |
| C835 | ELECTROLYTIC CAP. 470μF/6.3V M | CE0KMASDL471 |

| Ref. No. | Description | Part No. |
|---|---|---|
| C839 | ELECTROLYTIC CAP. 1μF/50V M H7 | CE1JMASSL1R0 |
| C840 | CHIP CERAMIC CAP.(1608) B K 0.1μF/50V | CHD1JK30B104 |
| C841 | ELECTROLYTIC CAP. 1μF/50V M | CE1JMASDL1R0 |
| C844 | ELECTROLYTIC CAP. 10μF/16V M H7 | CE1CMAVSL100 |
| C845 | CHIP CERAMIC CAP.(1608) CH J 1000pF/50V | CHD1JJ3CH102 |
| C846 | ELECTROLYTIC CAP. 470μF/6.3V M | CE0KMASDL471 |
| C847 | CHIP CERAMIC CAP. CH J 220pF/50V | CHD1JJ3CH221 |
| C848 | CHIP CERAMIC CAP.(1608) B K 0.1μF/50V | CHD1JK30B104 |
| C850 | ELECTROLYTIC CAP. 10μF/16V M H7 | CE1CMAVSL100 |
| C851 | CHIP CERAMIC CAP.(1608) CH J 1000pF/50V | CHD1JJ3CH102 |
| C852 | CHIP CERAMIC CAP. CH J 220pF/50V | CHD1JJ3CH221 |
| C853 | ELECTROLYTIC CAP. 10μF/16V M H7 | CE1CMAVSL100 |
| C854 | ELECTROLYTIC CAP. 10μF/16V M H7 | CE1CMAVSL100 |
| C863 | ELECTROLYTIC CAP. 4.7μF/25V M | CE1EMASDL4R7 |
| C864 | ELECTROLYTIC CAP. 4.7μF/25V M | CE1EMASDL4R7 |
| C900 | ELECTROLYTIC CAP. 10μF/16V M | CE1CMASDL100 |
| C901 | ELECTROLYTIC CAP. 0.33μF/50V M | CE1JMASDLR33 |
| C902 | ELECTROLYTIC CAP. 3.3μF/50V M | CE1JMASDL3R3 |
| C903 | CHIP CERAMIC CAP.(1608) B K 0.1μF/50V | CHD1JK30B104 |
| C904 | CHIP CERAMIC CAP.(1608) B K 0.022μF/50V | CHD1JK30B223 |
| C905 | ELECTROLYTIC CAP. 2.2μF/50V M | CE1JMASDL2R2 |
| C906 | CHIP CERAMIC CAP.(1608) B K 0.1μF/50V | CHD1JK30B104 |
| C907 | CHIP CERAMIC CAP.(1608) B K 0.033μF/50V | CHD1JK30B333 |
| C908 | ELECTROLYTIC CAP. 2.2μF/50V M | CE1JMASDL2R2 |
| C909 | ELECTROLYTIC CAP. 2.2μF/50V M | CE1JMASDL2R2 |
| C910 | ELECTROLYTIC CAP. 2.2μF/50V M | CE1JMASDL2R2 |
| C911 | ELECTROLYTIC CAP. 4.7μF/50V M | CE1JMASDL4R7 |
| C912 | ELECTROLYTIC CAP. 2.2μF/50V M | CE1JMASDL2R2 |
| C913 | ELECTROLYTIC CAP. 2.2μF/50V M H7 | CE1JMASSL2R2 |
| C916 | CHIP CERAMIC CAP.(1608) CH J 1000pF/50V | CHD1JJ3CH102 |
| C917 | CHIP CERAMIC CAP.(1608) B K 0.1μF/50V | CHD1JK30B104 |
| C918 | CHIP CERAMIC CAP.(1608) B K 0.1μF/50V | CHD1JK30B104 |
| C919 | ELECTROLYTIC CAP. 0.33μF/50V M | CE1JMASDLR33 |
| C920 | CHIP CERAMIC CAP.(1608) B K 0.1μF/50V | CHD1JK30B104 |
| C922 | ELECTROLYTIC CAP. 2.2μF/50V M | CE1JMASDL2R2 |
| C923 | ELECTROLYTIC CAP. 0.22μF/50V M | CE1JMASDLR22 |
| C925 | ELECTROLYTIC CAP. 0.47μF/50V M | CE1JMASDLR47 |
| C926 | ELECTROLYTIC CAP. 100μF/6.3V M | CE0KMASDL101 |
| C927 | CHIP CERAMIC CAP.(1608) B K 0.1μF/50V | CHD1JK30B104 |
| C928 | CHIP CERAMIC CAP.(1608) CH J 47pF/50V | CHD1JJ3CH470 |
| C1323 | CHIP CERAMIC CAP.(1608) F Z 0.1μF/50V | CHD1JZ30F104 |
| C1325 | CHIP CERAMIC CAP.(1608) CH J 33pF/50V | CHD1JJ3CH330 |
| C1333 | CHIP CERAMIC CAP.(1608) CH J 33pF/50V | CHD1JJ3CH330 |
| C1335 | CHIP CERAMIC CAP.(1608) F Z 0.1μF/50V | CHD1JZ30F104 |
| C1351 | CHIP CERAMIC CAP.(1608) B K 0.1μF/50V | CHD1JK30B104 |
| C1352 | CHIP CERAMIC CAP.(1608) B K 1μF/10V | CHD1AK30B105 |
| C1354 | CHIP CERAMIC CAP.(1608) CH J 100pF/50V | CHD1JJ3CH101 |
| C1401 | CHIP CERAMIC CAP.(1608) B K 0.1μF/50V | CHD1JK30B104 |
| C1403 | ELECTROLYTIC CAP. 1μF/50V M H7 | CE1JMASSL1R0 |
| C1421 | CHIP CERAMIC CAP.(1608) B K 0.01μF/50V | CHD1JK30B103 |
| C1423 | CHIP CERAMIC CAP.(1608) B K 0.01μF/50V | CHD1JK30B103 |
| C1441 | ELECTROLYTIC CAP. 1μF/50V M | CE1JMASDL1R0 |
| C1442 | ELECTROLYTIC CAP. 470μF/6.3V M | CE0KMASDL471 |
| C1443 | ELECTROLYTIC CAP. 470μF/6.3V M | CE0KMASDL471 |
| C1461 | ELECTROLYTIC CAP. 1μF/50V M | CE1JMASDL1R0 |
| C1462 | ELECTROLYTIC CAP. 470μF/6.3V M | CE0KMASDL471 |
| C1481 | ELECTROLYTIC CAP. 1μF/50V M | CE1JMASDL1R0 |
| C1482 | ELECTROLYTIC CAP. 470μF/6.3V M | CE0KMASDL471 |
| C1523 | CHIP CERAMIC CAP.(1608) F Z 0.1μF/50V | CHD1JZ30F104 |
| C1524 | ELECTROLYTIC CAP. 100μF/6.3V M | CE0KMASDL101 |
| C1531 | CHIP CERAMIC CAP.(1608) B K 0.01μF/50V | CHD1JK30B103 |
| C1532 | ELECTROLYTIC CAP. 22μF/6.3V M H7 | CE0KMASSL220 |
| C1535 | CHIP CERAMIC CAP.(1608) B K 0.01μF/50V | CHD1JK30B103 |

| Ref. No. | Description | Part No. |
|---|---|---|
| C1536 | ELECTROLYTIC CAP. 22μF/6.3V M H7 | CE0KMASSL220 |
| C1537 | CHIP CERAMIC CAP.(1608) F Z 0.1μF/50V | CHD1JZ30F104 |
| | **CONNECTORS** | |
| CN101 | 242 SERIES CONNECTOR 224202118W1 | J322C18TG001 |
| CN102 | PH CONNECTOR TOP 2P B2B-PH-K-S (LF)(SN) | J3PHC02JG029 |
| CN1609 | FE CONNECTOR TOP 8P 08FE-BT-VK-N | JCFEJ08JG001 |
| | **DIODES** | |
| D052 | ZENER DIODE DZ-10BSBT265 | NDTB00DZ10BS |
| D082 | PCB JUMPER D0.6-P10.0 | JW10.0T |
| D083 | ZENER DIODE DZ-18BSBT265 | NDTB00DZ18BS |
| D085 | RECTIFIER DIODE 1N4005 | NDQZ001N4005 |
| D100 | SWITCHING DIODE 1N4148M | NDTZ01N4148M |
| D101 | SWITCHING DIODE 1N4148M | NDTZ01N4148M |
| D106 | ZENER DIODE DZ-4.3BSCT265 | NDTC0DZ4R3BS |
| D108 | SWITCHING DIODE 1N4148M | NDTZ01N4148M |
| D109 | SWITCHING DIODE 1N4148M | NDTZ01N4148M |
| D112 | SWITCHING DIODE 1N4148M | NDTZ01N4148M |
| D221 | SWITCHING DIODE 1N4148M | NDTZ01N4148M |
| D223 | SWITCHING DIODE 1N4148M | NDTZ01N4148M |
| D501 | SWITCHING DIODE 1N4148M | NDTZ01N4148M |
| D555 | LED MIE-534A2 | NPZZM1E534A2 |
| D562 | LED(GREEN) 204-10GD/S957 | NPQZ10GDS957 |
| D563 | LED(GREEN) 204-10GD/S957 | NPQZ10GDS957 |
| D701 | ZENER DIODE DZ-33BSDT265 | NDTD00DZ33BS |
| D801 | ZENER DIODE DZ-5.1BSBT265 | NDTB0DZ5R1BS |
| D802 | ZENER DIODE DZ-5.1BSBT265 | NDTB0DZ5R1BS |
| D805 | ZENER DIODE DZ-5.1BSBT265 | NDTB0DZ5R1BS |
| D806 | ZENER DIODE DZ-5.1BSBT265 | NDTB0DZ5R1BS |
| D807 | ZENER DIODE DZ-5.1BSBT265 | NDTB0DZ5R1BS |
| D808 | ZENER DIODE DZ-5.1BSBT265 | NDTB0DZ5R1BS |
| D1603 | RECTIFIER DIODE 1N4005 | NDQZ001N4005 |
| D1604 | RECTIFIER DIODE 1N4005 | NDQZ001N4005 |
| | **ICS** | |
| IC301 | IC Y/C/A LA71205M-MPB-E | QSZBA0RSY037 |
| IC451 | IC HIFI LA72670BM-MPB-E | QSZBA0RSY039 |
| IC501 | IC PROCESSOR MN101D10FYD | QSZAA0RMS049 |
| IC571 | VFD DRIVER/CONTROLLER IC PT6313-S-TP(L) | NSZBA0TG2007 |
| IC800 | IC SWITCHING CD4052BNSR | NSZBA0TTY091 |
| IC803 | IC OP AMP RC4580IP | NSZBA0STY173 |
| IC804 | IC OP AMP KIA4558P/P | NSZBA0SJY035 |
| IC805 | VIDEO SWITCH MM1697AJBE | QSZBA0TMM150 |
| IC900 | IC MTS DECORDER AN5832SA-E1V | QSZBA0TMS003 |
| IC1404 | DRIVER FOR DVD MM1636XWRE | QSZBA0TMM108 |
| IC1405 | DRIVER FOR DVD MM1637XVBE | QSZBA0TMM102 |
| IC1406 | IC ANALOG MULTIPLEXER CD4053BNSR | NSZBA0TTY093 |
| IC1503 | VOLTAGE REGULATOR PQ070XF01SZH | QSZBA0SSH054 |
| IC1504 | VOLTAGE REGULATOR PQ070XF01SZH | QSZBA0SSH054 |
| | **COILS** | |
| L200 | INDUCTOR(100μH K) LAP02TA101K | LLAXKATTU101 |
| L251 | PCB JUMPER D0.6-P5.0 | JW5.0T |
| L303 | INDUCTOR(100μH K) LAP02TA101K | LLAXKATTU101 |
| L304 | RADIAL TYPE CHOKE COIL CW68-470K-841040NP | LLBD00PKV023 |
| L421 | INDUCTOR 47μH-K-5FT | LLARKBSTU470 |
| L422 | INDUCTOR 22μH-K-26T | LLAXKATTU220 |
| L423 | PCB JUMPER D0.6-P5.0 | JW5.0T |
| L451 | PCB JUMPER D0.6-P5.0 | JW5.0T |
| L501 | INDUCTOR(100μH K) LAP02TA101K | LLAXKATTU101 |
| L502 | RADIAL TYPE CHOKE COIL CW68-470K-841040NP | LLBD00PKV023 |
| L503 | INDUCTOR 12μH-K-26T | LLAXKATTU120 |
| L505 | INDUCTOR(100μH K) LAP02TA101K | LLAXKATTU101 |

| Ref. No. | Description | Part No. |
|---|---|---|
| L771 | PCB JUMPER D0.6-P5.0 | JW5.0T |
| L800 | PCB JUMPER D0.6-P5.0 | JW5.0T |
| L801 | PCB JUMPER D0.6-P5.0 | JW5.0T |
| L900 | PCB JUMPER D0.6-P5.0 | JW5.0T |
| L901A | RADIAL TYPE CHOKE COIL CW68-470K-841040NP | LLBD00PKV023 |
| L1351 | INDUCTOR(0.47μH K) LAP02TAR47K | LLAXKATTUR47 |
| L1441 | CHIP RES.(1608) 1/10W 0 Ω | RRXAJR5Z0000 |
| L1461 | CHIP RES.(1608) 1/10W 0 Ω | RRXAJR5Z0000 |
| L1481 | CHIP RES.(1608) 1/10W 0 Ω | RRXAJR5Z0000 |
| L1522 | RADIAL TYPE CHOKE COIL CW68-470K-841040NP | LLBD00PKV023 |
| | **TRANSISTORS** | |
| Q052 | NPN TRANSISTOR KRC103M-AT/P | NQSZKRC103MP |
| Q055 | TRANSISTOR KTC3198-Y-AT/P | NQSYKTC3198P |
| Q056 | TRANSISTOR KTC3203-Y-AT/P | NQSYKTC3203P |
| Q057 | TRANSISTOR KTC3198-Y-AT/P | NQSYKTC3198P |
| Q101 | TRANSISTOR 2SC3266-GR(TPE2 F) | QQS12SC3266F |
| Q102 | TRANSISTOR KTA1266-Y-AT/P | NQSYKTA1266P |
| Q103 | TRANSISTOR KTC3199-Y-AT/P | NQSYKTC3199P |
| Q104 | TRANSISTOR KTA1267-Y-AT/P | NQSYKTA1267P |
| Q105 | TRANSISTOR KTC3199-Y-AT/P | NQSYKTC3199P |
| Q107 | TRANSISTOR KTA1267-Y-AT/P | NQSYKTA1267P |
| Q108 | NPN TRANSISTOR KRC103M-AT/P | NQSZKRC103MP |
| Q205 | NPN TRANSISTOR KRC103M-AT/P | NQSZKRC103MP |
| Q301 | TRANSISTOR KTA1266-Y-AT/P | NQSYKTA1266P |
| Q302 | TRANSISTOR KTC3193-Y-AT/P | NQSYKTC3193P |
| Q303 | TRANSISTOR KTC3193-Y-AT/P | NQSYKTC3193P |
| Q391 | TRANSISTOR KTA1266-Y-AT/P | NQSYKTA1266P |
| Q421 | TRANSISTOR KTA1266-Y-AT/P | NQSYKTA1266P |
| Q422 | TRANSISTOR KTC3203-Y-AT/P | NQSYKTC3203P |
| Q425 | RES. BUILT-IN TRANSISTOR KRA103M-AT/P | NQSZ0KRA103M |
| Q426 | CHIP TRANSISTOR RN1511(TE85R.F) | QQ2Z0RN1511F |
| Q501 | TRANSISTOR KTC3199-BL-AT/P | NQS5KTC3199P |
| Q506 | PHOTO TRANSISTOR PT204-6B-12 | NPWZT2046B12 |
| Q509 | NPN TRANSISTOR KRC103M-AT/P | NQSZKRC103MP |
| Q510 | TRANSISTOR KTC3199-Y-AT/P | NQSYKTC3199P |
| Q804 | TRANSISTOR KTA1266-Y-AT/P | NQSYKTA1266P |
| Q805 | TRANSISTOR KTC3199-Y-AT/P | NQSYKTC3199P |
| Q806 | TRANSISTOR KTC3199-Y-AT/P | NQSYKTC3199P |
| Q1303 | TRANSISTOR KTC3199-BL-AT/P | NQS5KTC3199P |
| Q1304 | TRANSISTOR KTC3199-BL-AT/P | NQS5KTC3199P |
| Q1305 | TRANSISTOR KTA1267-Y-AT/P | NQSYKTA1267P |
| Q1351 | TRANSISTOR KTC3199-Y-AT/P | NQSYKTC3199P |
| | **RESISTORS** | |
| R056 | CARBON RES. 1/4W J 1k Ω | RCX4JATZ0102 |
| R057 | CARBON RES. 1/6W J 150 Ω | RCX6JATZ0151 |
| R064 | CARBON RES. 1/6W G 1.5k Ω | RCX6GATZ0152 |
| R065 | CARBON RES. 1/6W G 820 Ω | RCX6GATZ0821 |
| R073 | CARBON RES. 1/4W J 10k Ω | RCX4JATZ0103 |
| R075 | CARBON RES. 1/6W J 4.7k Ω | RCX6JATZ0472 |
| R092 | CARBON RES. 1/4W J 8.2k Ω | RCX4JATZ0822 |
| R095 | CARBON RES. 1/4W J 8.2k Ω | RCX4JATZ0822 |
| R097 | CARBON RES. 1/6W J 47k Ω | RCX6JATZ0473 |
| R103 | CHIP RES. 1/10W J 22k Ω | RRXAJR5Z0223 |
| R104 | CARBON RES. 1/6W J 47k Ω | RCX6JATZ0473 |
| R106 | CARBON RES. 1/4W J 5.6k Ω | RCX4JATZ0562 |
| R108 | CARBON RES. 1/4W J 180 Ω | RCX4JATZ0181 |
| R109 | CARBON RES. 1/4W J 180 Ω | RCX4JATZ0181 |
| R112 | CARBON RES. 1/4W J 5.6 Ω | RCX4JATZ05R6 |
| R113 | CARBON RES. 1/4W J 8.2 Ω | RCX4JATZ08R2 |
| R115 | CARBON RES. 1/4W J 470 Ω | RCX4JATZ0471 |
| R116 | CHIP RES. 1/10W J 4.7k Ω | RRXAJR5Z0472 |

| Ref. No. | Description | Part No. |
|---|---|---|
| R117 | CHIP RES. 1/10W J 4.7k Ω | RRXAJR5Z0472 |
| R118 | CHIP RES. 1/10W J 47k Ω | RRXAJR5Z0473 |
| R125 | CARBON RES. 1/4W J 220 Ω | RCX4JATZ0221 |
| R126 | CHIP RES. 1/10W J 47k Ω | RRXAJR5Z0473 |
| R127 | CHIP RES. 1/10W J 5.6k Ω | RRXAJR5Z0562 |
| R132 | CARBON RES. RD1/2S101JTA | RCX2JATZ0101 |
| R133 | CARBON RES. 1/4W J 220 Ω | RCX4JATZ0221 |
| R221 | CHIP RES. 1/10W J 2.2k Ω | RRXAJR5Z0222 |
| R222 | CHIP RES.(1608) 1/10W F 10k Ω | RRXAFR5H0103 |
| R223 | CHIP RES.(1608) 1/10W F 1.5k Ω | RRXAFR5H0152 |
| R224 | CHIP RES. 1/10W F 15k Ω | RRXAFR5H0153 |
| R225 | CHIP RES. 1/10W J 47k Ω | RRXAJR5Z0473 |
| R226 | CHIP RES. 1/10W J 10k Ω | RRXAJR5Z0103 |
| R228 | CHIP RES. 1/10W J 2.7k Ω | RRXAJR5Z0272 |
| R229 | CHIP RES. 1/10W J 2.2k Ω | RRXAJR5Z0222 |
| R230 | CHIP RES.(1608) 1/10W F 10k Ω | RRXAFR5H0103 |
| R231 | CHIP RES.(1608) 1/10W F 120 Ω | RRXAFR5H0121 |
| R232 | CHIP RES.(1608) 1/10W F 10k Ω | RRXAFR5H0103 |
| R234 | CHIP RES. 1/10W J 47k Ω | RRXAJR5Z0473 |
| R301 | CHIP RES. 1/10W J 10k Ω | RRXAJR5Z0103 |
| R302 | CHIP RES. 1/10W J 12k Ω | RRXAJR5Z0123 |
| R304 | CHIP RES. 1/10W J 1.2k Ω | RRXAJR5Z0122 |
| R306 | CHIP RES. 1/10W J 3.9M Ω | RRXAJR5Z0395 |
| R307 | CHIP RES. 1/10W J 100k Ω | RRXAJR5Z0104 |
| R308 | CHIP RES. 1/10W J 82k Ω | RRXAJR5Z0823 |
| R309 | CHIP RES. 1/10W J 2.2k Ω | RRXAJR5Z0222 |
| R310 | CHIP RES. 1/10W J 4.7k Ω | RRXAJR5Z0472 |
| R311 | CHIP RES. 1/10W J 1.8k Ω | RRXAJR5Z0182 |
| R312 | CHIP RES. 1/10W J 1.8k Ω | RRXAJR5Z0182 |
| R313 | CHIP RES. 1/10W J 1.8k Ω | RRXAJR5Z0182 |
| R314 | CHIP RES. 1/10W J 680k Ω | RRXAJR5Z0684 |
| R316 | CHIP RES. 1/10W J 2.2k Ω | RRXAJR5Z0222 |
| R317 | CHIP RES. 1/10W J 8.2k Ω | RRXAJR5Z0822 |
| R321 | CHIP RES. 1/10W J 10k Ω | RRXAJR5Z0103 |
| R322 | CHIP RES. 1/10W J 18k Ω | RRXAJR5Z0183 |
| R323 | CHIP RES. 1/10W J 10k Ω | RRXAJR5Z0103 |
| R324 | CHIP RES. 1/10W J 18k Ω | RRXAJR5Z0183 |
| R327 | CHIP RES.(1608) 1/10W F 1.1k Ω | RRXAFR5H0112 |
| R391 | CARBON RES. 1/4W J 560 Ω | RCX4JATZ0561 |
| R392 | CARBON RES. 1/4W J 560 Ω | RCX4JATZ0561 |
| R395 | PCB JUMPER D0.6-P5.0 | JW5.0T |
| R397 | CHIP RES. 1/10W J 220 Ω | RRXAJR5Z0221 |
| R401 | CHIP RES. 1/10W J 6.8k Ω | RRXAJR5Z0682 |
| R402 | CHIP RES. 1/10W J 5.6k Ω | RRXAJR5Z0562 |
| R409 | CHIP RES. 1/10W J 8.2k Ω | RRXAJR5Z0822 |
| R410 | CHIP RES. 1/10W J 12k Ω | RRXAJR5Z0123 |
| R411 | CHIP RES. 1/10W J 330k Ω | RRXAJR5Z0334 |
| R412 | CHIP RES. 1/10W J 150 Ω | RRXAJR5Z0151 |
| R413 | CHIP RES. 1/10W J 18k Ω | RRXAJR5Z0183 |
| R414 | CHIP RES. 1/10W J 910 Ω | RRXAJR5Z0911 |
| R415 | CHIP RES. 1/10W J 2.2k Ω | RRXAJR5Z0222 |
| R421 | CHIP RES. 1/10W J 1k Ω | RRXAJR5Z0102 |
| R422 | CHIP RES. 1/10W J 22k Ω | RRXAJR5Z0223 |
| R424 | CARBON RES. 1/6W J 47k Ω | RCX6JATZ0473 |
| R425 | CARBON RES. 1/6W J 100 Ω | RCX6JATZ0101 |
| R426 | CARBON RES. 1/6W J 820 Ω | RCX6JATZ0821 |
| R451 | CHIP RES. 1/10W J 12k Ω | RRXAJR5Z0123 |
| R452 | CHIP RES. 1/10W J 4.7k Ω | RRXAJR5Z0472 |
| R453 | CHIP RES. 1/10W J 27k Ω | RRXAJR5Z0273 |
| R454 | CHIP RES. 1/10W J 22k Ω | RRXAJR5Z0223 |
| R455 | CHIP RES. 1/10W J 47k Ω | RRXAJR5Z0473 |
| R456 | CHIP RES. 1/10W J 6.8k Ω | RRXAJR5Z0682 |
| R457 | CHIP RES. 1/10W J 470 Ω | RRXAJR5Z0471 |

| Ref. No. | Description | Part No. |
|---|---|---|
| R458 | CHIP RES. 1/10W J 3.3k Ω | RRXAJR5Z0332 |
| R459 | CHIP RES. 1/10W J 39k Ω | RRXAJR5Z0393 |
| R463 | CHIP RES. 1/10W J 27k Ω | RRXAJR5Z0273 |
| R464 | CHIP RES. 1/10W J 22k Ω | RRXAJR5Z0223 |
| R465 | CHIP RES. 1/10W J 47k Ω | RRXAJR5Z0473 |
| R466 | CHIP RES. 1/10W J 6.8k Ω | RRXAJR5Z0682 |
| R468 | CHIP RES. 1/10W J 470 Ω | RRXAJR5Z0471 |
| R469 | CHIP RES. 1/10W J 1k Ω | RRXAJR5Z0102 |
| R470 | CHIP RES. 1/10W J 470 Ω | RRXAJR5Z0471 |
| R471 | CHIP RES. 1/10W J 1k Ω | RRXAJR5Z0102 |
| R484 | CHIP RES. 1/10W J 47k Ω | RRXAJR5Z0473 |
| R485 | CHIP RES. 1/10W J 15k Ω | RRXAJR5Z0153 |
| R486 | CHIP RES. 1/10W J 47k Ω | RRXAJR5Z0473 |
| R487 | CHIP RES. 1/10W J 15k Ω | RRXAJR5Z0153 |
| R502 | CHIP RES. 1/10W J 2.2k Ω | RRXAJR5Z0222 |
| R503 | CHIP RES. 1/10W J 820 Ω | RRXAJR5Z0821 |
| R504 | CHIP RES. 1/10W J 100k Ω | RRXAJR5Z0104 |
| R506 | CHIP RES. 1/10W J 100k Ω | RRXAJR5Z0104 |
| R508 | CHIP RES.(1608) 1/10W 0 Ω | RRXAJR5Z0000 |
| R511 | CHIP RES. 1/10W J 39k Ω | RRXAJR5Z0393 |
| R516 | CHIP RES.(1608) 1/10W 0 Ω | RRXAJR5Z0000 |
| R517 | CARBON RES. 1/6W J 10k Ω | RCX6JATZ0103 |
| R518 | CHIP RES. 1/10W J 220k Ω | RRXAJR5Z0224 |
| R521 | CHIP RES. 1/10W J 1k Ω | RRXAJR5Z0102 |
| R523 | CHIP RES. 1/10W J 2.2k Ω | RRXAJR5Z0222 |
| R524 | CHIP RES. 1/10W J 10k Ω | RRXAJR5Z0103 |
| R525 | CHIP RES. 1/10W J 10k Ω | RRXAJR5Z0103 |
| R526 | CHIP RES. 1/10W J 1k Ω | RRXAJR5Z0102 |
| R527 | CHIP RES. 1/10W J 1k Ω | RRXAJR5Z0102 |
| R528 | CHIP RES. 1/10W J 10k Ω | RRXAJR5Z0103 |
| R529 | CHIP RES.(1608) 1/10W 0 Ω | RRXAJR5Z0000 |
| R531 | CHIP RES.(1608) 1/10W F 4.7k Ω | RRXAFR5H0472 |
| R532 | CHIP RES.(1608) 1/10W F 1.5k Ω | RRXAFR5H0152 |
| R533 | CHIP RES.(1608) 1/10W F 22k Ω | RRXAFR5H0223 |
| R534 | CHIP RES. 1/10W F 470 Ω | RRXAFR5H0471 |
| R535 | CHIP RES.(1608) 1/10W F 10k Ω | RRXAFR5H0103 |
| R536 | CHIP RES.(1608) 1/10W F 3.6k Ω | RRXAFR5H0362 |
| R537 | CHIP RES. 1/10W J 33k Ω | RRXAJR5Z0333 |
| R540 | CHIP RES. 1/10W J 390k Ω | RRXAJR5Z0394 |
| R541 | CHIP RES. 1/10W J 390k Ω | RRXAJR5Z0394 |
| R542 | CARBON RES. 1/4W J 220 Ω | RCX4JATZ0221 |
| R543 | CHIP RES. 1/10W J 4.7k Ω | RRXAJR5Z0472 |
| R544 | CHIP RES. 1/10W J 18k Ω | RRXAJR5Z0183 |
| R545 | CHIP RES. 1/10W J 10k Ω | RRXAJR5Z0103 |
| R546 | CHIP RES. 1/10W J 10k Ω | RRXAJR5Z0103 |
| R547 | CARBON RES. 1/6W J 1k Ω | RCX6JATZ0102 |
| R548 | CHIP RES. 1/10W J 4.7k Ω | RRXAJR5Z0472 |
| R551 | CHIP RES. 1/10W J 6.8k Ω | RRXAJR5Z0682 |
| R556 | CARBON RES. 1/6W J 47k Ω | RCX6JATZ0473 |
| R559 | CHIP RES. 1/10W J 3.9k Ω | RRXAJR5Z0392 |
| R562 | CARBON RES. 1/6W J 150 Ω | RCX6JATZ0151 |
| R564 | CARBON RES. 1/6W J 150 Ω | RCX6JATZ0151 |
| R566 | CARBON RES. 1/6W J 150 Ω | RCX6JATZ0151 |
| R585 | CARBON RES. 1/6W J 150 Ω | RCX6JATZ0151 |
| R590 | CHIP RES.(1608) 1/10W 0 Ω | RRXAJR5Z0000 |
| R591 | CHIP RES.(1608) 1/10W 0 Ω | RRXAJR5Z0000 |
| R592 | CHIP RES.(1608) 1/10W 0 Ω | RRXAJR5Z0000 |
| R595 | CHIP RES. 1/10W J 82k Ω | RRXAJR5Z0823 |
| R601 | CHIP RES. 1/10W J 1.8k Ω | RRXAJR5Z0182 |
| R602 | CHIP RES. 1/10W J 1k Ω | RRXAJR5Z0102 |
| R603 | CHIP RES. 1/10W J 1.2k Ω | RRXAJR5Z0122 |
| R604 | CHIP RES. 1/10W J 1.5k Ω | RRXAJR5Z0152 |
| R605 | CHIP RES. 1/10W J 2.2k Ω | RRXAJR5Z0222 |

| Ref. No. | Description | Part No. |
|---|---|---|
| R606 | CHIP RES. 1/10W J 3.9k Ω | RRXAJR5Z0392 |
| R607 | CHIP RES. 1/10W J 8.2k Ω | RRXAJR5Z0822 |
| R608 | CHIP RES. 1/10W J 22k Ω | RRXAJR5Z0223 |
| R611 | CHIP RES. 1/10W J 1.8k Ω | RRXAJR5Z0182 |
| R612 | CHIP RES. 1/10W J 1k Ω | RRXAJR5Z0102 |
| R613 | CHIP RES. 1/10W J 1.2k Ω | RRXAJR5Z0122 |
| R614 | CHIP RES. 1/10W J 1.5k Ω | RRXAJR5Z0152 |
| R615 | CHIP RES. 1/10W J 2.2k Ω | RRXAJR5Z0222 |
| R616 | CHIP RES. 1/10W J 3.9k Ω | RRXAJR5Z0392 |
| R617 | CHIP RES. 1/10W J 8.2k Ω | RRXAJR5Z0822 |
| R618 | CHIP RES. 1/10W J 22k Ω | RRXAJR5Z0223 |
| R641 | CHIP RES. 1/10W J 3.3k Ω | RRXAJR5Z0332 |
| R642 | CHIP RES. 1/10W J 3.3k Ω | RRXAJR5Z0332 |
| R645 | CHIP RES. 1/10W J 2.2k Ω | RRXAJR5Z0222 |
| R646 | CHIP RES. 1/10W J 3.3k Ω | RRXAJR5Z0332 |
| R647 | CHIP RES. 1/10W J 2.2k Ω | RRXAJR5Z0222 |
| R648 | CHIP RES. 1/10W J 3.3k Ω | RRXAJR5Z0332 |
| R650 | CHIP RES. 1/10W J 1k Ω | RRXAJR5Z0102 |
| R651 | CHIP RES. 1/10W J 560 Ω | RRXAJR5Z0561 |
| R702 | CARBON RES. 1/4W J 1.8k Ω | RCX4JATZ0182 |
| R751 | CHIP RES. 1/10W J 75 Ω | RRXAJR5Z0750 |
| R777 | CARBON RES. 1/6W J 39k Ω | RCX6JATZ0393 |
| R778 | CARBON RES. 1/6W J 10k Ω | RCX6JATZ0103 |
| R806 | CHIP RES. 1/10W J 33k Ω | RRXAJR5Z0333 |
| R807 | CHIP RES. 1/10W J 15k Ω | RRXAJR5Z0153 |
| R808 | CHIP RES. 1/10W J 15k Ω | RRXAJR5Z0153 |
| R809 | CHIP RES. 1/10W J 33k Ω | RRXAJR5Z0333 |
| R810 | CHIP RES. 1/10W J 75 Ω | RRXAJR5Z0750 |
| R825 | CHIP RES. 1/10W J 15k Ω | RRXAJR5Z0153 |
| R826 | CHIP RES. 1/10W J 33k Ω | RRXAJR5Z0333 |
| R827 | CHIP RES. 1/10W J 15k Ω | RRXAJR5Z0153 |
| R828 | CHIP RES. 1/10W J 33k Ω | RRXAJR5Z0333 |
| R829 | CHIP RES. 1/10W J 15k Ω | RRXAJR5Z0153 |
| R830 | CHIP RES. 1/10W J 33k Ω | RRXAJR5Z0333 |
| R831 | CHIP RES. 1/10W J 15k Ω | RRXAJR5Z0153 |
| R832 | CHIP RES. 1/10W J 33k Ω | RRXAJR5Z0333 |
| R833 | CARBON RES. 1/6W J 18k Ω | RCX6JATZ0183 |
| R834 | CHIP RES. 1/10W J 27k Ω | RRXAJR5Z0273 |
| R835 | CHIP RES. 1/10W J 18k Ω | RRXAJR5Z0183 |
| R836 | CHIP RES. 1/10W J 27k Ω | RRXAJR5Z0273 |
| R837 | CHIP RES.(1608) 1/10W F 10k Ω | RRXAFR5H0103 |
| R838 | CHIP RES. 1/10W J 6.8k Ω | RRXAJR5Z0682 |
| R839 | CHIP RES. 1/10W J 6.8k Ω | RRXAJR5Z0682 |
| R840 | CHIP RES.(1608) 1/10W F 10k Ω | RRXAFR5H0103 |
| R841 | CHIP RES. 1/10W F 18k Ω | RRXAFR5H0183 |
| R843 | CHIP RES. 1/10W F 18k Ω | RRXAFR5H0183 |
| R847 | CHIP RES. 1/10W J 1k Ω | RRXAJR5Z0102 |
| R852 | CHIP RES. 1/10W F 7.5k Ω | RRXAFR5H0752 |
| R853 | CHIP RES.(1608) 1/10W F 4.7k Ω | RRXAFR5H0472 |
| R854 | CHIP RES.(1608) 1/10W F 12k Ω | RRXAFR5H0123 |
| R855 | CHIP RES. 1/10W F 7.5k Ω | RRXAFR5H0752 |
| R856 | CHIP RES.(1608) 1/10W F 4.7k Ω | RRXAFR5H0472 |
| R857 | CHIP RES.(1608) 1/10W F 12k Ω | RRXAFR5H0123 |
| R858 | CHIP RES. 1/10W J 100k Ω | RRXAJR5Z0104 |
| R859 | CHIP RES. 1/10W J 470 Ω | RRXAJR5Z0471 |
| R860 | CHIP RES. 1/10W J 100k Ω | RRXAJR5Z0104 |
| R861 | CHIP RES. 1/10W J 470 Ω | RRXAJR5Z0471 |
| R862 | CHIP RES. 1/10W J 22k Ω | RRXAJR5Z0223 |
| R863 | CARBON RES. 1/6W J 22k Ω | RCX6JATZ0223 |
| R867 | CHIP RES. 1/10W J 1.5k Ω | RRXAJR5Z0152 |
| R868 | CHIP RES. 1/10W J 1.5k Ω | RRXAJR5Z0152 |
| R871 | CHIP RES. 1/10W J 220 Ω | RRXAJR5Z0221 |
| R872 | CHIP RES. 1/10W J 220 Ω | RRXAJR5Z0221 |

| Ref. No. | Description | Part No. |
|---|---|---|
| R875 | CHIP RES. 1/10W J 4.7k Ω | RRXAJR5Z0472 |
| R876 | CHIP RES. 1/10W J 4.7k Ω | RRXAJR5Z0472 |
| R900 | CHIP RES.(1608) 1/10W 0 Ω | RRXAJR5Z0000 |
| R902 | CHIP RES. 1/10W J 180k Ω | RRXAJR5Z0184 |
| R907 | CHIP RES. 1/10W J 3.3k Ω | RRXAJR5Z0332 |
| R908 | CHIP RES. 1/10W J 100 Ω | RRXAJR5Z0101 |
| R909 | CHIP RES. 1/10W J 100 Ω | RRXAJR5Z0101 |
| R910 | CHIP RES. 1/10W J 220 Ω | RRXAJR5Z0221 |
| R911 | CHIP RES. 1/10W J 220 Ω | RRXAJR5Z0221 |
| R912 | CHIP RES. 1/10W J 330 Ω | RRXAJR5Z0331 |
| R914 | CHIP RES. 1/10W J 10k Ω | RRXAJR5Z0103 |
| R1327 | CHIP RES. 1/10W J 470 Ω | RRXAJR5Z0471 |
| R1329 | CHIP RES. 1/10W J 1.5k Ω | RRXAJR5Z0152 |
| R1331 | CHIP RES. 1/10W J 1k Ω | RRXAJR5Z0102 |
| R1332 | CHIP RES. 1/10W J 1k Ω | RRXAJR5Z0102 |
| R1333 | CHIP RES. 1/10W J 910 Ω | RRXAJR5Z0911 |
| R1334 | CHIP RES. 1/10W J 470 Ω | RRXAJR5Z0471 |
| R1335 | CHIP RES. 1/10W J 820 Ω | RRXAJR5Z0821 |
| R1351 | CHIP RES. 1/10W J 1.8k Ω | RRXAJR5Z0182 |
| R1352 | CHIP RES. 1/10W J 2.2k Ω | RRXAJR5Z0222 |
| R1353 | CHIP RES. 1/10W J 2.2k Ω | RRXAJR5Z0222 |
| R1354 | CHIP RES. 1/10W J 220 Ω | RRXAJR5Z0221 |
| R1355 | CHIP RES. 1/10W J 75 Ω | RRXAJR5Z0750 |
| R1356 | CHIP RES. 1/10W J 100k Ω | RRXAJR5Z0104 |
| R1402 | CHIP RES. 1/10W J 75 Ω | RRXAJR5Z0750 |
| R1403 | CHIP RES. 1/10W J 75 Ω | RRXAJR5Z0750 |
| R1404 | CHIP RES. 1/10W J 75 Ω | RRXAJR5Z0750 |
| R1407 | CHIP RES. 1/10W J 75 Ω | RRXAJR5Z0750 |
| R1409 | CHIP RES.(1608) 1/10W F 220 Ω | RRXAFR5H0221 |
| R1410 | CHIP RES.(1608) 1/10W F 3.3k Ω | RRXAFR5H0332 |
| R1421 | CHIP RES.(1608) 1/10W F 240 Ω | RRXAFR5H0241 |
| R1422 | CHIP RES.(1608) 1/10W F 4.7k Ω | RRXAFR5H0472 |
| R1441 | CHIP RES.(1608) 1/10W F 200 Ω | RRXAFR5H0201 |
| R1443 | CHIP RES. 1/10W J 75 Ω | RRXAJR5Z0750 |
| R1461 | CHIP RES.(1608) 1/10W F 220 Ω | RRXAFR5H0221 |
| R1462 | CHIP RES. 1/10W J 75 Ω | RRXAJR5Z0750 |
| R1481 | CHIP RES.(1608) 1/10W F 220 Ω | RRXAFR5H0221 |
| R1482 | CHIP RES. 1/10W J 75 Ω | RRXAJR5Z0750 |
| R1521 | CHIP RES. 1/10W J 2.2k Ω | RRXAJR5Z0222 |
| R1615 | CARBON RES. 1/6W J 1.2k Ω | RCX6JATZ0122 |
| R1616 | CHIP RES. 1/10W J 33k Ω | RRXAJR5Z0333 |
| R1617 | CARBON RES. 1/6W J 100 Ω | RCX6JATZ0101 |
| **SWITCHES** | | |
| SW511 | LEAF SWITCH MXS01830MVP0 | SSC0101MCE03 |
| SW512 | ROTARY MODE SWITCH SSS-53MD | SSR0106KB003 |
| SW602 | TACT SWITCH KSM0614B | SST0101HH013 |
| SW603 | TACT SWITCH KSM0614B | SST0101HH013 |
| SW604 | TACT SWITCH KSM0614B | SST0101HH013 |
| SW605 | TACT SWITCH KSM0614B | SST0101HH013 |
| SW606 | TACT SWITCH KSM0614B | SST0101HH013 |
| SW607 | TACT SWITCH KSM0614B | SST0101HH013 |
| SW608 | TACT SWITCH KSM0614B | SST0101HH013 |
| SW609 | TACT SWITCH KSM0614B | SST0101HH013 |
| SW611 | TACT SWITCH KSM0614B | SST0101HH013 |
| SW613 | TACT SWITCH KSM0614B | SST0101HH013 |
| SW616 | TACT SWITCH KSM0614B | SST0101HH013 |
| **MISCELLANEOUS** | | |
| 2B16 | BUSH LED(F) H3700UD | 0VM409508 |
| FIP501 | VACUUM FLUORESCENT DISPLA 7-BT-301NS | TVFD1C0FT049 |
| JC2 | CHIP RES.(1608) 1/10W 0 Ω | RRXAJR5Z0000 |
| JC5 | CHIP RES.(1608) 1/10W 0 Ω | RRXAJR5Z0000 |
| JC6 | CHIP RES.(1608) 1/10W 0 Ω | RRXAJR5Z0000 |

| Ref. No. | Description | Part No. |
|---|---|---|
| JC31 | CHIP RES.(1608) 1/10W 0 Ω | RRXAJR5Z0000 |
| JC38 | CHIP RES.(1608) 1/10W 0 Ω | RRXAJR5Z0000 |
| JK751 | RCA JACK MSP-213V1-324-B NI L | JXRL030LY104 |
| JK804 | RCA JACK MSP-213V3-324-B NI L | JYRL030LY025 |
| JK805 | RCA JACK MSP-382V-12 NILF | JXRL020LY120 |
| JK1202 | RCA JACK MSP-281V41-B(B110) | JXRL010LY140 |
| JK1401 | S TYPE JACK MDC-050V-2.4 LF(B110 | JXEL040LY003 |
| JK1402 | S TYPE JACK MDC-050V-2.4 LF(B110 | JXEL040LY003 |
| JK1403 | RCA JACK MSP-213V1-652-B NI L | JXRL030LY116 |
| RS501 | REMOTE RECEIVER MIM-93M6DKF | USESJRSUNT01 |
| TP301 | PCB JUMPER D0.6-P7.5 | JW7.5T |
| TP302 | PCB JUMPER D0.6-P15.0 | JW15.0T |
| TP452 | PCB JUMPER D0.6-P30.0 | JW30.0T |
| TP502 | PCB JUMPER D0.6-P7.5 | JW7.5T |
| TP505 | PCB JUMPER D0.6-P10.0 | JW10.0T |
| TP506 | PCB JUMPER D0.6-P5.0 | JW5.0T |
| TP507 | PCB JUMPER D0.6-P13.5 | JW13.5T |
| TP513 | PCB JUMPER D0.6-P5.0 | JW5.0T |
| TP751 | PCB JUMPER D0.6-P6.0 | JW6.0T |
| TP753 | PCB JUMPER D0.6-P6.0 | JW6.0T |
| TP754 | PCB JUMPER D0.6-P6.0 | JW6.0T |
| TU900 | TUNER UNIT VH025AFE | UTUNNTUSP026 |
| VR501 | CARBON P.O.T. VZ067TL1 B104 PB(F) | VRCB104HH014 |
| W01 | WIRE ASSEMBLY FFC 30PIN 30PIN/P1.00/140 | WX1E9A00-001 |
| W02 | WIRE ASSEMBLY FFC 30PIN 30PIN/P1.00/140 | WX1E9A00-001 |
| X301 | XTAL 3.579545MHz(20PPM) | FXC355LLN004 |
| X502 | RESONATOR XTAL 32.768kHz 32.768kHz (10PPM12.5 | FXC323LCHE02 |

## POWER SW CBA

| Ref. No. | Description | Part No. |
|---|---|---|
| | POWER SW CBA (MCV-B)<br>Consists of the following: | ---------- |
| | **DIODE** | |
| D561 | LED(RED) 204HD/E | NPQZ00204HDE |
| | **SWITCH** | |
| SW601 | TACT SWITCH KSM0614B | SST0101HH013 |
| | **MISCELLANEOUS** | |
| W001 | WIRE ASSEMBLY 4P 4PIN/AWG26#2651/P2.0 | WX1E9A00-002 |

## DVD OPEN/CLOSE SW CBA

| Ref. No. | Description | Part No. |
|---|---|---|
| | DVD OPEN/CLOSE SW CBA (MCV-C)<br>Consists of the following: | ---------- |
| | **SWITCHES** | |
| SW615 | TACT SWITCH KSM0614B | SST0101HH013 |
| SW617 | TACT SWITCH KSM0614B | SST0101HH013 |
| | **MISCELLANEOUS** | |
| W002 | WIRE ASSEMBLY 3PIN 3PIN/AWG26#2651/ P2.0 | WX1E9A00-003 |

## FRONT JACK CBA

| Ref. No. | Description | Part No. |
|---|---|---|
| | FRONT JACK CBA (MCV-D)<br>Consists of the following: | ---------- |
| | **CONNECTOR** | |
| CN1605 | FE CONNECTOR TOP 8P 08FE-BT-VK-N | JCFEJ08JG001 |
| | **RESISTORS** | |
| R804 | CHIP RES. 1/10W J 75 Ω | RRXAJR5Z0750 |
| R812 | CHIP RES. 1/10W J 75 Ω | RRXAJR5Z0750 |
| R815 | CHIP RES. 1/10W J 75 Ω | RRXAJR5Z0750 |

| Ref. No. | Description | Part No. |
|---|---|---|
| | **MISCELLANEOUS** | |
| JK800 | RCA JACK(RED) MTJ-032-11A-31 FE01 | JYRL010LY024 |
| JK801 | RCA JACK(WHITE) MTJ-032-11B-41 FE01 | JXRL010LY102 |
| JK803 | RCA JACK(YELLOW) MTJ-032-11B-40 FE01 | JXRL010LY101 |
| JK806 | S TYPE JACK MDC-050V-2.4 LF(B110 | JXEL040LY003 |
| W03 | FFC CABLE 8P FFC/P1.25/105 | WX1E9600-002 |

## SENSOR CBA

| Ref. No. | Description | Part No. |
|---|---|---|
| | SENSOR CBA<br>Consists of the following: | 1VSA13725 |
| | **TRANSISTORS** | |
| Q503 | PHOTO TRANSISTOR PT204-6B-12 | NPWZT2046B12 |
| Q504 | PHOTO TRANSISTOR PT204-6B-12 | NPWZT2046B12 |

## PSV CBA

| Ref. No. | Description | Part No. |
|---|---|---|
| | PSV CBA<br>Consists of the following: | 1VSA14012 |
| | POWER SUPPLY CBA (PSV-A)<br>JUNCTION CBA (PSV-B) | ----------<br>---------- |

## POWER SUPPLY CBA

| Ref. No. | Description | Part No. |
|---|---|---|
| | POWER SUPPLY CBA (PSV-A) | ---------- |
| | **CAPACITORS** | |
| C012 | ELECTROLYTIC CAP. 470μF/16V M | CE1CMASDL471 |
| C013 | ELECTROLYTIC CAP. 10μF/50V M H7 | CE1JMASSL100 |
| C014 | ELECTROLYTIC CAP. 470μF/16V M | CE1CMASDL471 |
| C015 | ELECTROLYTIC CAP. 1000μF/16V M | CE1CMASDL102 |
| C017 | ELECTROLYTIC CAP. 4700μF/6.3V SL | CE0KMZADL472 |
| C018 | CERAMIC CAP. B K 220pF/500V | CCD2JKP0B221 |
| C019 | ELECTROLYTIC CAP. 1000μF/6.3V M | CE0KMASDL102 |
| C021 | ELECTROLYTIC CAP. 470μF/6.3V M | CE0KMASDL471 |
| C023 | CERAMIC CAP. B K 470pF/500V | CCD2JKP0B471 |
| C024 | ELECTROLYTIC CAP. 22μF/50V M | CE1JMASDL220 |
| C027 | ELECTROLYTIC CAP. 3300μF/6.3V SL | CE0KMZADL332 |
| C028 | ELECTROLYTIC CAP. 1000μF/6.3V M | CE0KMASDL102 |
| C029 | ELECTROLYTIC CAP. 100μF/10V M H7 | CE1AMAVSL101 |
| C030 | CHIP CERAMIC CAP.(1608) B K 0.01μF/50V | CHD1JK30B103 |
| C031 | CHIP CERAMIC CAP.(1608) B K 0.033μF/50V | CHD1JK30B333 |
| C1001⚠ | METALIZED FILM CAP. 0.068μF/250V M | CT2E683MS037 |
| C1003 | CERAMIC CAP. B K 0.01μF/500V | CCD2JKP0B103 |
| C1004 | ELECTROLYTIC CAP. 220μF/200V M | CA2D221S6008 |
| C1005 | CERAMIC CAP. B K 220pF/500V | CCD2JKP0B221 |
| C1006⚠ | SAFETY CAP. 3300pF/250V | CCG2EMA0F332 |
| C1013 | CERAMIC CAP.(AX) B K 1000pF/50V | CCA1JKT0B102 |
| C1029 | CERAMIC CAP.(AX) X K 2200pF/16V | CCA1CKT0X222 |
| C1032 | ELECTROLYTIC CAP. 10μF/16V M H7 | CE1CMAVSL100 |
| C1033 | CERAMIC CAP. F Z 0.022μF/50V | CCD1JZS0F223 |
| | **DIODES** | |
| D012 | SCHOTTKY BARRIER DIODE SB390 | NDQZ000SB390 |
| D013 | RECTIFIER DIODE BA158 | NDQZ000BA158 |
| D014 | SCHOTTKY BARRIER DIODE SB190 | NDQZ000SB190 |
| D015 | SCHOTTKY BARRIER DIODE SB340 | NDQZ000SB340 |
| D016 | SCHOTTKY BARRIER DIODE SB340 | NDQZ000SB340 |
| D017 | ZENER DIODE DZ-15BSCT265 | NDTC00DZ15BS |
| D018 | RECTIFIER DIODE BA158 | NDQZ000BA158 |
| D020 | PCB JUMPER D0.6-P5.0 | JW5.0T |
| D021 | SCHOTTKY BARRIER DIODE SB340 | NDQZ000SB340 |

| Ref. No. | Description | Part No. |
|---|---|---|
| D022 | SCHOTTKY BARRIER DIODE SB140 | NDQZ000SB140 |
| D023 | RECTIFIER DIODE FR101 | NDWZ000FR101 |
| D024 | ZENER DIODE DZ-18BSAT265 | NDTA00DZ18BS |
| D025 | ZENER DIODE DZ-6.8BSBT265 | NDTB0DZ6R8BS |
| D1001 | DIODE 1N5397-B | NDLZ001N5397 |
| D1002 | DIODE 1N5397-B | NDLZ001N5397 |
| D1003 | DIODE 1N5397-B | NDLZ001N5397 |
| D1004 | DIODE 1N5397-B | NDLZ001N5397 |
| D1006 | SWITCHING DIODE 1SS133(T-77) | QDTZ001SS133 |
| D1007 | CARBON RES. 1/4W J 68k Ω | RCX4JATZ0683 |
| D1011 | RECTIFIER DIODE BA158 | NDQZ000BA158 |
| D1012 | SWITCHING DIODE 1SS133(T-77) | QDTZ001SS133 |
| D1018 | SWITCHING DIODE 1SS133(T-77) | QDTZ001SS133 |
| D1023 | SWITCHING DIODE 1SS133(T-77) | QDTZ001SS133 |
| D1024 | SWITCHING DIODE 1SS133(T-77) | QDTZ001SS133 |
| D1025 | SWITCHING DIODE 1SS133(T-77) | QDTZ001SS133 |
| **IC** | | |
| IC010⚠ | PHOTOCOUPLER PS2561A-1(W) | QPEWPS2561A1 |
| **COILS** | | |
| L010 | POWER INDUCTORS TWKBNP-180K | LLC180KKV007 |
| L012 | POWER INDUCTORS TWKBNP-150K | LLC150KKV007 |
| L013 | RADIAL TYPE CHOKE COIL CW68-470K-841040NP | LLBD00PKV023 |
| L1001⚠ | LINE FILTER 27MH CGS-LF0059A-NP | LLBG00ZSA012 |
| L1002 | BEAD CORE B16 RH 3.5X10X1.3 | XL03010XM001 |
| **TRANSISTORS** | | |
| Q031 | TRANSISTOR KTA1267-Y-AT/P | NQSYKTA1267P |
| Q1001⚠ | MOS FET 2SK3563 | QFWZ02SK3563 |
| Q1003 | TRANSISTOR KTC3199-Y-AT/P | NQSYKTC3199P |
| Q1008 | TRANSISTOR KTC3199-Y-AT/P | NQSYKTC3199P |
| **RESISTORS** | | |
| R001⚠ | GLASS GLAZE RES. 1/2W J 3.3M Ω | RXX2JZLZ0335 |
| R015 | CARBON RES. 1/4W J 1k Ω | RCX4JATZ0102 |
| R016 | CHIP RES. 1/10W J 1k Ω | RRXAJR5Z0102 |
| R017 | CHIP RES.(1608) 1/10W 0 Ω | RRXAJR5Z0000 |
| R018 | CHIP RES. 1/10W J 4.7k Ω | RRXAJR5Z0472 |
| R019 | CHIP RES. 1/10W J 1.8k Ω | RRXAJR5Z0182 |
| R020 | CHIP RES.(1608) 1/10W 0 Ω | RRXAJR5Z0000 |
| R021 | CHIP RES.(1608) 1/10W F 2.2k Ω | RRXAFR5H0222 |
| R022 | CHIP RES. 1/10W F 5.6k Ω | RRXAFR5H0562 |
| R023 | CHIP RES.(1608) 1/10W 0 Ω | RRXAJR5Z0000 |
| R1004 | METAL OXIDE FILM RES. 2W J 82k Ω | RN02823ZU001 |
| R1005 | CARBON RES. 1/4W J 1M Ω | RCX4JATZ0105 |
| R1006 | CARBON RES. 1/4W J 1M Ω | RCX4JATZ0105 |
| R1008 | CARBON RES. 1/6W G 680 Ω | RCX6GATZ0681 |
| R1010 | CARBON RES. 1/6W J 22k Ω | RCX6JATZ0223 |
| R1011 | METAL OXIDE FILM RES. 2W J 0.68 Ω | RN02R68ZU001 |
| R1029 | CARBON RES. 1/6W J 150k Ω | RCX6JATZ0154 |
| R1032 | CARBON RES. 1/6W G 1.2k Ω | RCX6GATZ0122 |
| R1034 | CARBON RES. 1/4W J 680k Ω | RCX4JATZ0684 |
| R1036 | CARBON RES. 1/6W J 100k Ω | RCX6JATZ0104 |
| R1037 | CHIP RES. 1/10W J 10k Ω | RRXAJR5Z0103 |
| R1038 | CARBON RES. 1/6W J 100k Ω | RCX6JATZ0104 |
| R1039 | CARBON RES. 1/6W J 470k Ω | RCX6JATZ0474 |
| R1043 | METAL OXIDE FILM RES. 2W J 1.8 Ω | RN021R8ZU001 |
| R1044 | CARBON RES. 1/4W J 1k Ω | RCX4JATZ0102 |
| **MISCELLANEOUS** | | |
| 2B18 | HEATSINK V2600PZ | 0VM409007B |
| 2L019 | SCREW S-TIGHT M3X8 BIND HEAD+ | GBJS3080 |
| AC1001⚠ | AC CORD W/O A GND WIRE UL/CSA 1770 BLACK | WAC0172LTE17 |
| F1001⚠ | FUSE TIME RAG SIC 1A 250V UC PSE | PEG20C0W3002 |
| FH1001 | FUSE HOLDER MSF-015 LF (B110) | XH01Z00LY002 |
| FH1002 | FUSE HOLDER MSF-015 LF (B110) | XH01Z00LY002 |
| T001⚠ | TRANS POWER BCK-28-0663 | LTT00CPXB033 |

## JUNCTION CBA

| Ref. No. | Description | Part No. |
|---|---|---|
| | JUNCTION CBA (PSV-B)<br>Consists of the following: | --------- |
| **CONNECTOR** | | |
| CN1612 | 242 SERIES CONNECTOR TUC-P18X-B1 WHT ST | JCTUB18TG002 |
| **DIODE** | | |
| D2013 | RECTIFIER DIODE RL201 | NDQZ000RL201 |
| **MISCELLANEOUS** | | |
| W003 | WIRE ASSEMBLY 9P 9PIN/AWG26#2651/P2.0 | WX1E9A00-004 |
| W004 | WIRE ASSEMBLY 9P 9PIN/AWG26#2651/P2.0 | WX1E9A00-004 |

CMWR20V6
E9A82CD
2006-04-05